PROVINCE OF SASKATCHEWAN

09-10

ANNUAL REPORT

MINISTRY OF ENVIRONMENT

State of Drinking Water Quality in Saskatchewan

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Letters of Transmittal

The Honourable Dr. Gordon L. Barnhart
Lieutenant Governor of Saskatchewan

I respectfully submit the Annual Report on the State of Drinking Water Quality in Saskatchewan for the fiscal year ending March 31, 2010.

The Government of Saskatchewan carefully measures each commitment they make and carefully counts each commitment they have kept. This government is committed to delivering and building on their promises made to Saskatchewan people.

The initiatives pursued in 2009-10 and the results achieved, are communicated to the legislature and to the Saskatchewan people through this report. I wish to acknowledge that the work of protecting our drinking water is ongoing and this report helps to inform future planning and resource allocation for upcoming years.

The 2009-10 Annual Report demonstrates progress towards the commitments that relate to drinking water and source water protection activities of involved ministries and agencies as of March 31, 2010.

Government has defined its direction for ministries and agencies and has communicated this direction through a vision and goals released with the 2010-11 Budget. Ministries and agencies have aligned with this direction and look to the future with confidence to help deliver on government's plan for Saskatchewan – that our best days are still ahead and to keep Saskatchewan growing strongly.

Respectfully submitted,

Dustin Duncan
Minister of Environment

To Minister Nancy Heppner
Ministry of Environment

I respectfully submit the Annual Report on the State of Drinking Water Quality in Saskatchewan for the fiscal year ending March 31, 2010. I acknowledge responsibility for this 2009-10 report and declare the information contained within this report is accurate and reliable.

The 2009-10 report describes the drinking water related activities of ministries and agencies involved in drinking water and source water protection activities in Saskatchewan. Key partners in protecting and improving Saskatchewan drinking water supplies and source waters include the Ministry of Environment, Ministry of Health, Regional Health Authorities, Saskatchewan Watershed Authority, SaskWater, the Ministry of Municipal Affairs and the Ministry of Agriculture.

On behalf of the key partners, the Ministry of Environment provides information on our collective accomplishments in the protection, conservation and sustainable development of drinking water and related source water resources during 2009-10.

The province is committed to ensuring that all stakeholders are engaged and supported as partners in the management of drinking water supplies and the groundwater and watersheds which supply them. The province will continue to prevent and reduce risks to the health of people and the environment and to ensure safe and sustainable drinking water and wastewater management.

Fresh, clean water is essential for a high quality of life in our province and for ongoing economic development. People all across Saskatchewan need to know they have access to safe and reliable water now and in the future. Together, ministries and agencies continue to build a secure and prosperous Saskatchewan by working to improve the management of drinking water systems in the province.

Respectfully submitted,

Elizabeth Quarshie
Deputy Minister

Introduction

This annual report presents the activities and results of various agencies in managing drinking water in Saskatchewan for the fiscal year ending March 31, 2010. It reports on public commitments made and other accomplishments of ministries and agencies engaged in drinking water management in Saskatchewan. This report also demonstrates progress made on Government commitments as stated in the Government Direction for 2009-10 and the 2007 Minister's Mandate letter to ensure Saskatchewan communities have access to safe and clean water supplies.

This is the eighth Annual Report on the Status of Drinking Water in Saskatchewan. This report is intended to inform residents of Saskatchewan of the status of drinking water quality, waterworks infrastructure, source water protection and water-related items and measures in the province over the April 1, 2009 to March 31, 2010 period. The report is a legislated requirement under *The Environmental Management and Protection Act, 2002* and will be provided on an annual basis in future years.

The 2009-10 Annual Report follows a similar format to the 2008-09 Annual Report. The 2009-10 Annual Report on the Status of Drinking Water also sets the stage for the 2011-12 planning and budget process by providing an opportunity to assess the accomplishments, results and lessons learned, and identifying how to build on past successes for the benefit of Saskatchewan people.

Safe drinking water is a vital component in the protection of public health and disease prevention and therefore essential for the health and well-being of Saskatchewan's citizens. High quality water is important for maintaining natural ecosystems and the species that depend upon them, ensuring the productivity of industry, sustaining commerce and for sustaining growth in the province. The quality of drinking water, the condition of systems that produce it and the protection of source waters remains an important public health and environmental issue in Saskatchewan at the present time and for the future.

The report outlines the roles, responsibilities and resources of ministries and agencies involved in water management, as well as the regulatory framework and activities undertaken by the Government of Saskatchewan to manage drinking water. The report also discusses operator certification, drinking water quality monitoring, source protection, information management systems and public education initiatives which are key actions and indicators of performance in improving drinking water quality in Saskatchewan. An update on progress made in improving the City of North Battleford's drinking water as a result of recommendations made in the Report of the Commission of Inquiry is available online at (http://www.northbattlefordwaterinquiry.ca/inquiry/inquiry.htm).

The report includes contributions from Saskatchewan Ministries of Environment, Health, Municipal Affairs and Agriculture, as well as material provided by the Saskatchewan Watershed Authority and SaskWater. The Saskatchewan Ministry of Environment's Municipal Branch compiled the report.

Alignment with Government Direction

The actions undertaken to protect and sustain drinking water and source water in the future align with government's vision and three goals:

Our Government's Vision

A secure and prosperous Saskatchewan, leading the country in economic and population growth, while providing a high quality of life for all.

Government's Goals

- Sustain Economic Growth for the benefit of Saskatchewan people, ensuring the economy is ready for growth and positioning Saskatchewan to meet the challenges of economic and population growth and development.
- Secure Saskatchewan as a safe place to live and raise a family where people are confident in their future, ensuring the people of Saskatchewan benefit from the growing economy.
- Keep Government's Promises and fulfill the commitments of the election, operating with integrity and transparency, accountable to the people of Saskatchewan.

Together, all ministries and agencies support the achievement of government's three goals, and work towards a secure and prosperous Saskatchewan.

An Overview of Drinking Water Management in Saskatchewan

Since the waterborne disease outbreaks of May 2000 in Walkerton, Ontario and spring 2001 in North Battleford, Saskatchewan, the Government of Saskatchewan has heightened and focused efforts to improve drinking water supplies and protect source waters in the province. The intent of these efforts is also to provide safe drinking water. These actions are also intended to reassure the citizens of the province that government is helping to ensure the water we drink is safe.

Several ministries and agencies are involved in the governance and protection of drinking water supplies and source waters in Saskatchewan including the Ministry of Environment, Ministry of Health, Regional Health Authorities, Saskatchewan Watershed Authority, SaskWater, Ministry of Municipal Affairs and the Ministry of Agriculture. The following is a summary of the major roles, priorities and actions of each of the government ministries and agencies involved in drinking water management and source water protection.

Saskatchewan Ministry of Environment

- leads ongoing planning, implementation and reporting associated with drinking water governance and management to which all participating ministries and agencies contribute;
- implements, inspects and regulates compliance for 585 licensed municipal waterworks, 57 permitted pipelines, 37 regional or provincial park waterworks, 25 industrial waterworks, 68 other permitted waterworks (such as trailer courts, institutions and Hutterite colonies) and 574 wastewater facilities under *The Water Regulations, 2002*;
- issues permits for construction and operation of water and wastewater works;
- develops policies, protocols, water quality standards and guidelines to support protection of drinking water and implementation of *The Water Regulations, 2002;*
- liaises with the Operator Certification Board (OCB);
- manages the Ministry of Environment's drinking water information system Environmental Management System (EMS) that houses water quality and inspection data for all Ministry of Environment regulated waterworks and wastewater works in the province;

- monitors surface water quality at primary surface water quality stations across the province; and
- manages the www.SaskH2O.ca website that supplies a broad range of drinking water related information gathered from water management authorities within the province.

Saskatchewan Ministry of Municipal Affairs
- for 2009-10, provided financial assistance for water infrastructure under the Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), the Canada-Saskatchewan Building Canada Fund-Communities Component (BCF-CC), the Canada-Saskatchewan Building Canada Fund-Major Infrastructure Fund (BCF-MIC), the Canada-Saskatchewan Provincial/Territorial Base Fund (PT Base), the Canada-Saskatchewan Infrastructure Stimulus Fund (ISF), the Saskatchewan Infrastructure Growth Initiative (SIGI) and the Northern Water and Sewer Program;
- legislates and regulates pricing policies and capital investment strategies for municipal waterworks; and
- legislates and regulates municipal protection of water sources through planning bylaws.

Saskatchewan Watershed Authority
- monitors source (surface/ground) water;
- leads watershed and aquifer planning;
- owns, operates and maintains water management infrastructure;
- provides waterworks source water approval (except municipal);
- allocates groundwater and surface water for use; and
- develops and provides State of Watershed Reporting.

Saskatchewan Ministry of Health/Health Regions
- inspects for compliance at semi-public waterworks and certain other waterworks as required by *The Health Hazard Regulations;*
- manages data systems for Public Health Inspectors and laboratory information;
- analyses water through the Saskatchewan Disease Control Laboratory; and
- provides advice and addresses waterborne illnesses.

Saskatchewan Ministry of Agriculture
- has responsibility under *The Agricultural Operations Act* for intensive livestock provisions;
- administers *The Irrigation Act, 1996* and provides water related advice;
- provides pesticide (applicator) licenses under *The Pest Control Products (Saskatchewan) Act*;
- conducts research, demonstrations and technology transfer;
- provides advice on farm water supplies; and
- coordinates Environmental Farm Planning (Federal/Provincial Growing Forward Agreement).

SaskWater
- provides potable and non-potable water supply;
- provides wastewater treatment and management;
- designs, builds, owns and operates water supply and wastewater systems;
- provides certified operation and maintenance for customer-owned systems;
- provides project management services and operator training;
- offers leak detection services.

The Ministry of Environment, Ministry of Health and the individual Regional Health Authorities continue to deliver water and wastewater programming and governance through a system of centralized planning, protocol and standards development and regionalized inspection and compliance services. During 2009-10, the Ministry of Environment's staff complement totaled 37.8 Full Time Equivalents (FTE) for delivery of all aspects of the Ministry's drinking water and wastewater management activities. An additional three FTEs are employed by the Ministry of Environment in the management of the Environmental Management System and the SaskH20 website. The former Drinking Water Quality Section which was focused on drinking water and wastewater management underwent a significant reorganization in May 2009 and became the Municipal Branch. The focus of the Municipal Branch was

expanded in May 2009 to include the regulation of drinking water, wastewater, solid waste and waste recycling management. The Ministry of Health's Saskatchewan Disease Control Laboratory has 17.5 FTEs that are dedicated to water testing and the accreditation program in support of the Safe Drinking Water Strategy. Health Region Public Health Inspectors, Medical Health Officers and Public Health Nurses also play a role in water related activities (i.e. inspection of semi-public water supplies, issuance of Emergency Boil Water Orders (EBWO) and water borne disease investigations).

The Ministry of Agriculture has nine FTEs that deliver intensive livestock inspection and regulatory approval services to ensure protection of water resources from intensive livestock operations. Two additional full time positions provide technical assistance to address environmental issues related to livestock development and abattoir waste management. Ministry of Agriculture staff continues to participate in the Aquifer/Watershed planning activities and technical committees. The Ministry also develops and distributes management and technology information for conservation and grazing and crop production that reduce and/or minimize impacts to water resources. The Ministry has three FTEs delivering pesticide regulatory services.

The *Pest Control Products (Saskatchewan) Act* and regulations require any individual who uses or applies a pesticide for commercial gain to hold a valid pesticide applicator license. An applicant for a pesticide applicator license must pass a pesticide applicator course, which is valid for five years. The Saskatchewan Institute of Applied Science and Technology (SIAST) offer pesticide applicator courses. Education is highly valued for all pesticide users to mitigate the risks associated with pesticide usage. Training is recognized internationally as a key tool in risk reduction. Training results in more responsible use of pesticides while keeping the environment safe for the public. There are currently 1807 licensed pesticide applicators in the province.

The Ministry of Agriculture administers *The Irrigation Act, 1996*. The legislation ensures soils and water are suitable for sustainable irrigation. Irrigation soils, water quality and water tables are monitored for sustainability.

The Ministry of Municipal Affairs water-related programming is mainly provided through centralized policy development and program delivery services.

Key partners outside the provincial government include the federal government through the Building Canada Fund, Federal Gas Tax program, Canada-Saskatchewan Municipal Rural Infrastructure Fund, participants in the Growing Forward Agreement, municipalities and other waterworks owners, the Saskatchewan Urban Municipalities Association (SUMA), the Saskatchewan Association of Rural Municipalities (SARM), the Saskatchewan Water and Wastewater Association (SWWA) and the Operator Certification Board (OCB). SWWA and the OCB have been instrumental in advancing waterworks operator certification in the province. The OCB is appointed by government, but operates at arm's length in considering the qualification and standing of water and wastewater works operators in the province. Key stakeholders are consulted on a periodic basis to aid in the ongoing development and delivery of drinking water and wastewater related programming and activities of the Government of Saskatchewan.

The sections of the report that follow provide information on the status of drinking water in Saskatchewan during 2009-10. Further information on drinking water quality is available on the SaskH2O website (http://www.SaskH20.ca) and on the Ministry of Environment's website (http://www.environment.gov.sk.ca). Additional detailed background information regarding drinking water quality in Saskatchewan is available at http://www.SaskH2O.ca/news.asp. http://www.SaskH2O.ca/MyDrinkingWater.asp The following sections also report on the key actions and the level of performance in achieving key indicators for the improvement in drinking water and related protection and enhancement measures.

Transparency regarding the status of drinking water is intended to improve trust in drinking water supplies and the waterworks systems that produce it. Public reporting is intended to further the accountability of the ministries and agencies that manage and govern drinking water in the province.

Progress in 2009-10

This section presents the key results, activities, accomplishments and outcomes in 2009-10 relating to the protection and status of drinking water in Saskatchewan. The results in this section support the achievement of government's goals as identified in the "Alignment with Government Direction" section and the more specific key areas relating to drinking water that follow.

Ministries and agencies engaged in drinking water management in Saskatchewan use performance information to assess overall progress towards improving the safety and management of drinking water in the province. In turn, reviews and assessments each year allow and direct the most effective adjustment of future plans and actions to address priority elements. Management affirms that all major external factors that could have an impact on performance results have been identified and explained. Additionally, significant efforts have been made to ensure performance data is valid through ongoing review and validation of data. In general, performance in addressing drinking water quality and source water protection management in Saskatchewan has paralleled or exceeded performance of other Canadian provinces where similar strategic initiatives are in place.

The results for key actions provided below are organized by common activities focusing on various components of drinking water and source water protection and followed by a report on actual progress. The following is a summary of the most significant achievements relating to drinking water and source water status and protection in Saskatchewan during 2009-10 by the various ministries and agencies engaged in water management in Saskatchewan. Further information is available by contacting the Ministry of Environment or viewing on the internet at www.SaskH2O.ca.

Waterworks systems and operations provide safe, clean and sustainable drinking water

Waterworks staff are capable and well-trained

Provision of safe drinking water is highly reliant on the knowledge and capabilities of waterworks operators and the manner in which they apply their skills to produce and monitor the quality of drinking water. Along with source water protection, sound and capable infrastructure and water quality monitoring, knowledgeable operators capable of sound waterworks operations are one of the elements of a "multi-barrier approach" to ensure safe drinking water. The following is a summary of activities conducted during 2009-10 and the related achievements in working to ensure that waterworks staff are capable and well-trained.

Results

- The Ministry of Environment participated as a member of the Canadian Water and Wastewater Operators Certification Committee in conjunction with the Associated Boards of Certification (ABC) towards developing the Canadian Best Practices for operator certification. This committee is setting the groundwork for reciprocity across Canada within the Agreement in Trade for all certified water and wastewater operators.

- Operator certification and continuing education requirements are always reviewed and discussed during each waterworks and sewage works inspection to help ensure operators remain current with certification requirements.

- During 2009-10, approximately 80 per cent of operators receiving renewal notification from the Operator Certification Board (OCB) actually renewed their certification. In contrast, during 2008-

2009, 70 per cent of operators renewed their certification on notification by the OCB. This increase in renewal in comparison with the 2008-09 fiscal year is due in part by the OCB's efforts to inform operators well in advance of their renewal date and posting the dates of their review sittings a year in advance. There is still an issue with late applications for renewal by operators and a higher rate of retirements by operators.

- The Ministry of Environment directly supported training opportunities including aiding in the organization of the northern water workshop in April 2009. The Ministry also supported the Saskatchewan Water and Wastewater Association (SWWA) for their midterm membership meeting in June 2009 and annual convention in November 2009 by providing organizational aid and instruction to operators during training sessions. Ministry staff also supported SWWA by providing instruction during dedicated operator training workshops hosted at locations across the province throughout the year. The Ministry also contributed to the annual Saskatchewan Association of Rural Water Pipelines (SARWP) conference in December 2009 by providing instruction and workshop presentations.

- The Ministry of Environment continued to liaise with SIAST on the content and requirements for operator training in Saskatchewan as a way to ensure educational opportunities meet the needs of waterworks operators in the province.

- In terms of overall progress on operator certification, the OCB continued to certify water and wastewater works operators throughout 2009-10. As of March 31, 2010, there were 659 waterworks licensed by Ministry of Environment with at least one certified operator, regional operator or contract operator (see Table 1). Certification trends for 2009-10 indicate that certification of waterworks operators has leveled off or is in slight decline in 2009-10. This trend is more apparent for waterworks other than municipal waterworks. Operator certification information indicates that some operators are now retiring and some have not renewed their certification and have therefore not been counted in Table 1 below. Additionally, some operators continue to take exams and are in the process of obtaining certification or of upgrading their certification levels and categories. Ministry of Environment continues to work with municipalities, waterworks owners and others to maintain and to advance the implementation of operator certification and continuing education in the province.

  Table 1 provides additional trend information on the number of waterworks with certified operators since 2000-01 for all waterworks regulated by Ministry of Environment.

Table 1: Summary of certification trends for water and wastewater works since 2000-10

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Certified operators*	44	293	403	533	682	1107	1170	1223	1231	1229
All Waterworks with certified operators	24	116	217	219	326	532	614	638	675	659
Number of licensed works**	609	609	617	630	641	714	728	724	765	772
Number of Hygienic Works not Requiring Certified operators	N/A	N/A	N/R	N/R	N/R	92	101	107	114	113

* Operators working in Ministry of Environment regulated waterworks.
**Licensed works includes municipal water treatment works, water distribution systems, wastewater treatment works and wastewater collection systems. These values exclude hygienic waterworks that do not require a certified operator
N/A: Not Applicable.
N/R: Not Recorded.

Source: Operator Certification Board database and Ministry of Environment hygienic waterworks listing

Table 2 provides information on the number of operators certified at various levels in all categories of the water and wastewater treatment industry in Saskatchewan during 2009-10.

Table 2: Distribution of certified operators at water and wastewater works - fiscal year 2009-10*

System Classification[1]	Water Treatment	Water Distribution	Wastewater Treatment	Wastewater Collection
Small System[2]	169	169	107	107
Class-1	357	447	413	375
Class-2	259	262	83	130
Class-3	58	17	23	11
Class-4	41	17	26	11
Total	884	912	652	634

[1] Waterworks system classification is defined by the complexity and size of the waterworks in accordance with standard parameters adopted from the Associated Boards of Certification (ABC). More information on waterworks system classification is available from the Operator Certification Standards EPB139 (see http://www.SaskH2O.ca/DWBinder/EPB139OperatorCertificationStandards2002.pdf).

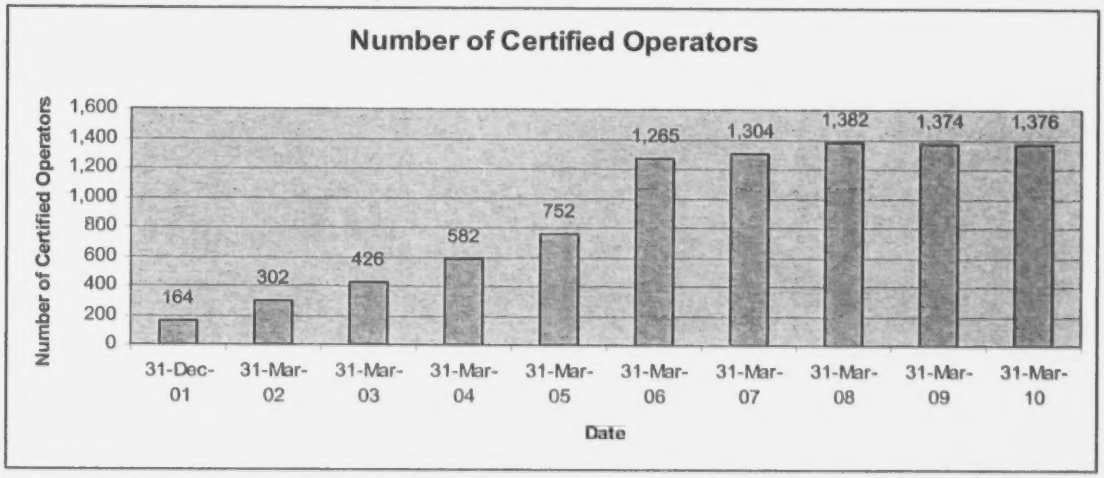
[2] There are several types of Small Systems. A Small Water System is defined as a Class-1 groundwater treatment and/or Class-1 distribution system, serving fewer than 500 people. Small treated drinking water pipelines serving fewer than 500 people can be classified as Small Systems and some of their operators have become certified as Small System operators and are shown only under Water Distribution. A Small Wastewater System is a Class-1 wastewater treatment system (generally a lagoon system) and/or a Class-1 collection system serving fewer than 500 people.

*Note: Table 2 does not include operators that are overdue in certificate renewal as of Mar. 31, 2010.

Source: Operator Certification Board Database

Figure 1 provides a historical summary of the number of operators certified to date. During 2009-10, the number of all certified operators reported by the OCB is 1376 as of March 31, 2010. These are all the certified operators, including those who do not operate waterworks regulated by Ministry of Environment. Indian and Northern Affairs Canada (INAC) required First Nation operators to become certified by the same criteria of education, experience and examination as operators mandated by Ministry of Environment. Since INAC did not have a certification program of its own, Ministry of Environment invited the First Nations operators to participate in its certification program and 140 were certified at the end of this fiscal year. In addition, there are seven operators working in federal facilities such as parks or correctional centers. Also, of these 1376 operators, 127 are overdue for their certification renewal but are still on the list pending renewal in the new fiscal year.

Figure 1: Summary of certified operator trends



Source: Operator Certification Board certification records database

The number of certified operators applying for initial certification during the 2009-10 fiscal year was 116, and there were approximately 90 operators who applied to upgrade their certification by either increasing their level of certification or adding new categories of certification. A summary of communities with Certified Operators and Operator Classification, updated after each OCB meeting, is available on the internet (http://www.SaskH2O.ca/foroperators.asp).

Measurement Results
Per cent of communities with human consumptive waterworks whose operators have received some level of certification

Table 3: Per cent of communities with human consumptive waterworks whose operators have received some level of certification

	Sept. 30, 2004	March 31, 2006	March 31, 2007	March 31, 2008	March 31, 2009	March 31, 2010	Annual Change (2009-10)
Per cent of communities with human consumptive waterworks whose operators have received some level of certification	54.3	96.8	98.9	99.2	99.2	98.9	↓0.3

Source: Ministry of Environment – Environmental Management System

As of March 31, 2010; 98.9 per cent of communities with human consumptive waterworks requiring a certified operator have operators that have achieved some level of certification (Table 3). This represents no significant change from the previous year when the reported value was 99.2 per cent. Approximately 99.92 per cent of the population served by a community (municipal) human consumptive waterworks have an operator that has received full certification or some level of training (completed any approved training courses). Knowledgeable, certified operators help to ensure safe drinking water. Due to regulatory changes in 2007 there are another four human consumptive waterworks which do not require a certified operator, only appropriate training for the operator.

Compliance with operator certification and therefore achievement of this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s). Acceptance and uptake of operator certification is key to ensuring the delivery of safe drinking water and therefore a reason this measure was selected. As a point of comparison, Alberta's (population 3.2 million) mandatory certification program took effect on January 1, 1983 and its program currently has 1,831 certified operators. Currently their certification examinations, certification applications and certificate renewals are free. Saskatchewan (population approximately 1.0 million) has 1,376 certified operators, examinations cost about $80 and certification and renewal fees (every two years) are $150. Saskatchewan's certification program has shown significant progress since its inception in 2000.

Infrastructure produces water that meets the national guidelines

Infrastructure design, capability, condition and maintenance are critical in the production of safe drinking water. Standards, incentives, requirements, compliance measures and implementation plans are also important to ensure that waterworks are operated and monitored to achieve drinking water of a quality that protects human health. The Guidelines for Canadian Drinking Water Quality (see: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index_e.html) are used in Canada as the definitive measure of science-based safety criteria for drinking water. Saskatchewan

has adopted the guidelines as standards (see: http://www.SaskH2O.ca/DWBinder/EPB207Drinking_Water_Standards_post.pdf). The following is a summary of activities which were conducted during 2009-10 and the related achievements in working to ensure that infrastructure produces water that meets national drinking water quality guidelines.

Results

- In 2009, SaskWater delivered a record 5.74 billion litres of safe quality drinking water to Saskatchewan Communities, rural pipeline groups and industry.

- During 2009-10, the Ministry of Environment provided technical advice to numerous small communities that aided in resolving operational and water quality concerns, resulting in safer drinking water. Late in the fiscal year the Municipal Branch commenced additional work seeking to find alternative technical water treatment solutions for small pipelines that face challenges in maintaining adequate disinfectant residual levels. These activities and interaction with municipalities and owners will continue in 2010-11 and are an ongoing service of the Ministry.

- The Ministry of Environment provided same day advice to small municipalities in dealing with waterworks upgrades at systems using Groundwater Under Direct Influence (GUDI) of surface water. The Ministry also developed a framework and guidance to aid in the evaluation of new water and wastewater treatment technologies which will help to assure sound performance and investment.

- The Ministry of Environment continued to track, report and follow-up with waterworks owners on compliance with sample submission and water quality standards. During 2009-10, the Ministry completed a computer-based method of auditing compliance with sample submission requirements and achievement of disinfection residual requirements as a means to help assure compliance and accurate and transparent reporting. An on-line tool which will aid waterworks owners track their compliance was nearing completion at the end of the fiscal year.

- The Ministry of Environment continued to provide technical advice support to the federal-provincial committees reviewing applications for Saskatchewan-based infrastructure grants. During 2009-10, the focus of this work was the Canada-Saskatchewan Building Canada Fund and 197 projects were reviewed by the ministry to help ensure drinking water meets water quality standards and the overall goals of safe drinking water are advanced.

- The Ministry of Environment worked with project proponents to assure the introduction of new treatment technology throughout the province, such as the Mainstream water treatment systems.

- In 2009-10, 55 water and wastewater projects were approved for $139.3 million in federal-provincial funding under Canada-Saskatchewan Building Canada Fund - Communities Component (BCF-CC) and Provincial Territorial Base Fund (PT Base). These programs were included in the longer term municipal infrastructure funding agreement signed between Saskatchewan and the federal government on April 11, 2008.

- Under the Infrastructure Stimulus Fund (ISF) and BCF-CC top-up stimulus programs announced in the 2009 Federal Budget, 68 water and wastewater projects were approved for $59.3 million in federal-provincial funding.

- To continue water and wastewater related funding in 2009-10 under the Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), $1.8 million in federal-provincial funding was approved for two water projects. Under the Saskatchewan Infrastructure Growth Initiative (SIGI) Program, nineteen water and sewer projects with total approved borrowing of $23.8 million were approved to receive interest rate subsidies.

- Under the federal-provincial infrastructure programs (MRIF, BCF-CC, Canada-Saskatchewan Building Canada Fund – Major Infrastructure Component (BCF-MIC), PT Base, and ISF), $81.1 million was provided for 193 water and wastewater projects in 2009-10.

- In 2009-10, $0.6 million in interest-free subsidies were provided for eight water and wastewater projects under SIGI.

- In 2009, $6.3 million in provincial funding was spent under the Northern Water and Sewer Program in 20 communities, of which $2.8 million was Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), Building Canada Fund Infrastructure Program (BCF) and Western Diversification funding. Under the Northern Emergency Program, $19,000 was spent in five communities on northern water and sewer system repairs that arose during the year. Also, $528,000 was spent on engineering operating and maintenance advice to northern communities on water and sewer systems.

- SaskWater expanded its services to include leak detection in 2009. This service strengthens SaskWater's commitment to provide safe quality drinking water to Saskatchewan communities as leaks can damage infrastructure, contaminate drinking water and impact a community's water revenues in addition to wasting a valuable resource.

- SaskWater will be supplying safe quality drinking water to two new customers in the Saskatoon region in 2010, including the Town of Aberdeen and the rural pipeline group Highway 41. In order to supply these customers, SaskWater constructed a $4 million transmission system in 2009 which included a pipeline from Saskatoon to Aberdeen, a booster pump station and a meter building. With this development, more rural residents near Saskatoon will have access to safe drinking water.

- SaskWater continued to develop business proposals and solutions with its municipal and community clients focusing on growing its service areas through regional systems from which water services are delivered. This strategy allows for more cost-efficient and effective delivery of services compared to service provision on a one-off basis.

- In total, SaskWater owns seven water treatment plants, three waste water facilities, 37 water pump stations and over 800 kilometres of pipeline. Through this regional network, the company provided potable and non-potable water to 55 communities, 59 rural pipeline groups, 44 industrials and 213 small rural customers.

- As part of its project management services, SaskWater was contracted by the Town of Cupar to provide project management to help them plan for the most appropriate water treatment process and facilities for their water supply needs. The project was motivated in part by the town receiving a $3.428 million Building Canada Fund grant.

- SaskWater's Northern Engineering Unit plays a key role in northern Saskatchewan through planning and managing the design and construction of water and wastewater infrastructure on the behalf of the Ministry of Municipal Affairs and the communities involved. In 2009, communities with infrastructure construction projects included the Town of La Ronge, the Northern Village of Air Ronge, the Lac La Ronge Indian Band, the Northern Village of Sandy Bay, the Peter Ballantyne Cree Nation, the Hatchet Lake Denesuline First Nation, the Northern Settlement of Wollaston Lake and the Northern Village of Denare Beach. In total, SaskWater was involved in 35 northern projects.

  The Northern Engineering group continued to provide project management services for the Lac La Ronge Regional Water Corporation – Water Supply System on behalf of La Ronge, Air Ronge and the Lac La Ronge Indian Band. The new water supply system project includes the expansion of La Ronge water treatment plant, the conversion of Air Ronge's water treatment plant to a water distribution plant, construction of the new pipeline to connect the communities and modification to

the water distribution system serving the Town of La Ronge, Village of Air Ronge and the Lac La Ronge First Nation.

- SaskWater also worked on behalf of Indian and Northern Affairs Canada (INAC) to provide operator training to Saskatchewan First Nations. In 2009, SaskWater trained a total of 81 water and wastewater operators at 39 First Nations communities. The goal of the training program is to assist in providing a safe supply of water to residents and to protect the investment made in water and wastewater infrastructure.

- In 2009-2010, SaskWater added two new customers to its potable water supply network including Intervalley Water Inc, a rural pipeline association and Biz-Hub Developments Ltd. an Industrial Park, both north of Saskatoon. SaskWater signed certified operations and maintenance (COM) agreements with two new customers including Interlake Regional Water Board (the Village of Cochin and the resorts communities of Trevessa, Days, Summerfield and Chatfield Beaches) and ATCO Frontec Corp at 15 Wing Moose Jaw. SaskWater also renewed COM services with three existing customers including the communities of White City, Star City and Halbrite.

- During 2009-010, the Municipal Branch of the Ministry of Environment undertook studies on ammonia in municipal drinking water supplies. This study is important in assuring complete water disinfection since the presence of naturally occurring ammonia in a water supply can impede disinfection processes. This study resulted in the development of a new guidance fact sheet for waterworks operators which is intended to aid in managing water supplies affected by naturally occurring ammonia. A copy of the fact sheet is available at: http://www.saskh2o.ca/DWBinder/EPB311StrategiesDealingWithGroundwaterTreatmentSystemsHavingHighNaturalAmmonia.pdf

- The Municipal Branch of the Ministry of Environment completed an evaluation of haloacetic acid occurrence and impacts in selected Saskatchewan water supplies in 2009-10. The investigation shows that haloacetic acids are present in Saskatchewan watersupplies and will therefore have financial implications when a drinking water quality standard is introduced for this parameter. This work was performed by University of Regina engineering students as a means to foster research and expertise development in the province.

- During 2009-10 the Ministry of Environment continued to participate in workshops and committees with the Communities of Tomorrow, the National Research Council, University of Regina and TRLabs to explore the potential for developing a water innovation centre in Saskatchewan. Supporting research and development of water and wastewater treatment systems for small communities is one way in which the Ministry is working to sustain growth while assuring safe drinking water quality.

In terms of the status of drinking water in Saskatchewan, the bacteriological quality of water is a critical parameter because, when the related standards are exceeded, there is a possibility of rapid significant health effects for consumers. Saskatchewan uses coliform bacteria as an indicator of the quality of drinking water. The Saskatchewan Disease Control Laboratory and the Saskatchewan Research Council employed routine analysis for *E. coli* during the fiscal year to help improve the meaning and speed of monitoring results. Saskatchewan's standards for bacteriological drinking water quality are more stringent than the Guidelines for Canadian Drinking Water Quality.

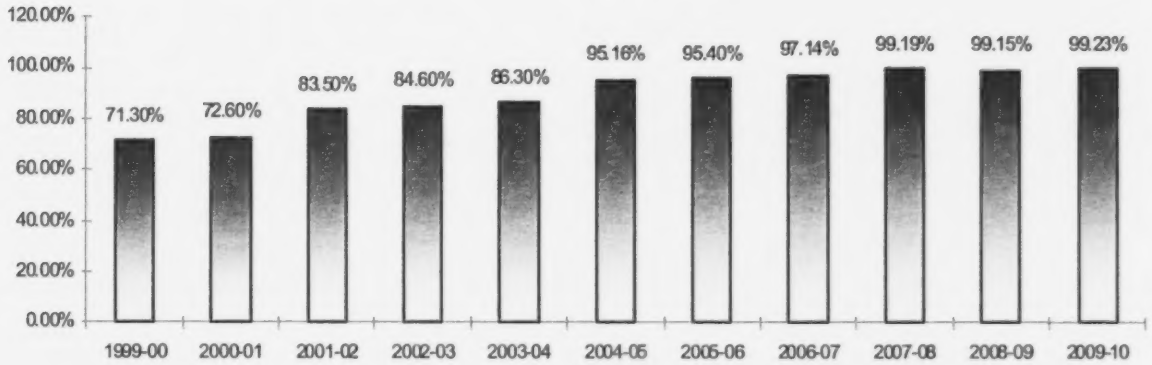
The number of samples required for bacteriological water quality monitoring of a waterworks is based on the number of people served by the system (see Municipal Drinking Water Quality Monitoring Guidelines at http://www.SaskH2O.ca/foroperators.asp) or directly to http://www.SaskH2O.ca/DWBinder/EPB202MunicipalDrinkingWaterQualityGuidelinesEdition3.pdf. When a routine water sample shows the presence of bacteria, follow-up activities including repeat sampling are performed. The Ministry of Environment issued five Precautionary Drinking Water Advisories (PDWAs) and three Emergency Boil Water Orders (EBWOs) during 2009-10 when bacteriological related problems arose at waterworks.

During 2009-10, there were 23,503 valid "Municipal Human Consumptive Use" routine bacteriological water quality samples submitted of which 266 samples (1.13 per cent) exceeded the water quality standards of zero total coliforms, zero fecal coliforms or greater than 200 background bacteria per 100 millilitres of water. During 2009-10, a total of 23,503 out of 22,918 (102.55 per cent) of the required regular samples for bacteriological water quality were submitted from waterworks regulated by the Ministry of Environment. During 2008-09, a total of 20,190 out of 18,854 (107.09 per cent) of the required regular samples for bacteriological water quality were submitted from 759 waterworks regulated by the Ministry of Environment. The increase in total "required" and "submitted" samples in 2009-10 reflects 772 waterworks that have been granted permitted status and also includes 221 facilities submitting more than 100 per cent of required samples. Over submission of water samples provides a greater level of certainty of water quality but skews the tracking of sample submission totals.

Measurement Results

Per cent of facilities that meet bacteriological guidelines 90 per cent of the time

Figure 2: Bacteriological standards compliance



Source: Ministry of Environment – Environmental Management System

There has been a steady increase in compliance with bacteriological water quality standards (90 per cent of the time) over the past 10 fiscal years with a 27.93 per cent increase in compliance from 71.3 for 1999-2000 to 99.23 per cent in 2009-10 (Figure 2). The steady increase in compliance with standards is the result of increased inspection and follow-up on water quality sampling results by Ministry of Environment staff as well as increased attention to water treatment and monitoring by waterworks owners and operators.

The bacteriological quality of drinking water is important since contamination of this type can result in significant illness within a short period of time. Compliance with bacteriological water quality standards was selected as a reportable performance measure, since it provides a good indication of drinking water quality, which is important to consumers. Tracking compliance with bacteriological standards over several years indicates a positive trend. Compliance with this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s) in achieving bacteriological water quality compliance. Ongoing inspection and interaction with waterworks owners and operators is planned to sustain good performance in achieving water that is safe from bacteriological threats.

There were 153 "Municipal Human Consumptive Use" waterworks in the province that exceeded the bacteriological standards at least one time during 2009-10. During the same period, there were twenty-two waterworks that had more than 10 per cent of their routine bacteriological water samples show the presence of bacteria (Adams Water Club West Pipeline, Alida, Antler, Baildon Hutterite Colony, Brooksby, Caron, Coronach, Cutbank Rural Pipeline, Goodeve, Gronlid, Kyle, Lake Alma, Marquis

Rural Water Users Pipeline, Mortlach, Ponderosa Trailer Court, Radisson, Sintaluta, Smiley, South Floral Water Corporation Pipeline, Spring Creek Hutterite Colony, Storthoaks, Webb Hutterite Colony).

Turbidity describes water cloudiness and is an indirect measure of the number of suspended particles in water. Turbidity is a good indicator of the effectiveness of a water treatment system and is important because turbid water can harbor disease-causing organisms. If excessive turbidity is present, the effectiveness of disinfection of drinking water can be impaired. Waterworks regulated by the Ministry of Environment are required to measure turbidity at least on a daily basis as a means to track water treatment system performance.

The Ministry of Environment's turbidity standards are now consistent with the Guidelines for Canadian Drinking Water Quality, Seventh Edition. During phase-in of the turbidity standards, the Ministry generally applied a turbidity standard of 1.0 Nephelometric Turbidity Units (NTU) for existing waterworks. The provincial turbidity standards presently in effect are: 0.1 NTU for membrane filtration systems; 0.3 NTU for conventional filtration systems, and 1.0 NTU for slow sand filtration and groundwater based systems.

During the 2009-10 fiscal year, on-site monitoring for turbidity and record keeping continued to be required and these records were checked during site inspections by EPOs.

Ministry of Environment staff continued to ensure that waterworks owners and operators track turbidity-monitoring results and manage turbidity related water quality problems. There were 20 PDWAs issued during 2009-10 when turbidity related problems arose at waterworks. Turbidity testing results are being reported in conjunction with information submitted with regular bacteriological samples.

The range of turbidity results tested by all agencies in 2009-10 (municipal, private and government owners) is shown in Table 4.

Table 4: Range of turbidity testing results – 2009-10

Turbidity Range (NTU)	Samples	Per Cent Samples	Systems*
0 – 1	23,716	92.10 %	634
1 – 2	1,132	4.40 %	251
2 – 3	410	1.59 %	114
3 – 4	205	0.80 %	67
4 – 5	120	0.47 %	40
5+	167	0.65%	74
Totals	25,750	100 %	N/A*

* The total number of systems is not applicable as some systems reported turbidity testing results in more than one range of turbidity values. There are a total of 772 waterworks systems regulated by the Ministry of Environment.

Source: Ministry of Environment - Environmental Management System

Disinfection is widely used in Saskatchewan and Canada as one of the key methods to prevent the spread of waterborne disease. Most disinfection of drinking water in the province is performed using chlorine-based products. Unless otherwise permitted, waterworks regulated by the Ministry of Environment are required to maintain:

a) a free chlorine residual of not less than 0.1 milligrams per Litre (mg/L) in the water entering a distribution system; and
(b) a total chlorine residual of not less than 0.5 mg/L or a free chlorine residual of not less than 0.1 mg/L in the water throughout the distribution system; and
(c) chlorine residuals are expected to be within regulatory limits 90 per cent of the time.

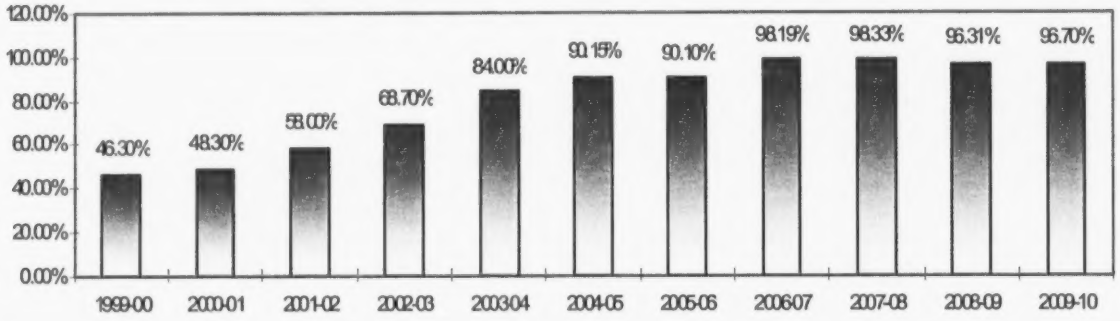
Chlorine disinfectant monitoring usually includes two tests: total chlorine residual and free chlorine residual which are done from samples collected from the water distribution system. Free chlorine residual in drinking water is important in providing lasting protection in water distribution systems. Total

chlorine residual is helpful for waterworks operators to understand the effectiveness of disinfection and to judge cleanliness of the water distribution system. On-site monitoring for chlorine residual and associated record keeping is required and these records are checked during site inspections by Ministry of Environment's Environmental Project Officers (EPOs). During 2009-10, the Ministry issued 13 PDWAs as a result of chlorination related concerns or problems at waterworks.

Measurement Results

Per cent of waterworks [regulated by Ministry of Environment] that meet disinfection requirements 90 per cent of the time

Figure 3: Disinfection standard compliance



Source: Ministry of Environment – Environmental Management System

There has been a slight increase in compliance with the disinfection standards over the past fiscal year with an increase to 96.70 per cent in 2009-10 from 96.31 per cent in 2008-09 (Figure 3). The reason for this slight increase could be attributed to a constant emphasis on the need to comply with the disinfection standards. The compliance rate is significantly above the 1999-2000 compliance rate of only 46.3 per cent of facilities meeting disinfection requirements.

Proper disinfection of drinking water is one of the most important ways to ensure safe drinking water and prevent the outbreak of waterborne diseases. Compliance with chlorine residual requirements was selected as a measure since it provides a good indication of drinking water protection, which is important to consumers. Tracking compliance with chlorine residual standards over several years indicates a positive trend, which has leveled off to some degree from 2006-07 to 2009-10. Compliance with this measure is primarily controlled by the owner of the waterworks, but also requires cooperation from the waterworks operator(s) in achieving disinfection standards compliance. Ongoing inspection and interaction with waterworks owners and operators is planned to sustain good performance in achieving water that is safe from bacteriological threats and meets disinfection standards.

The Ministry of Environment uses the Guidelines for Canadian Drinking Water Quality as the basis for the water quality standards found in *The Water Regulations, 2002*. These standards are included in each new or renewed waterworks permit. Permitting for municipal waterworks continued though the 2009-10 fiscal year. A total of 267 waterworks operational permits were issued or renewed. A total of 23 pre-existing waterworks permits were amended. The drinking water quality standards for "chemical-health" are being phased-in by December 2010 for existing waterworks and take effect upon the start-up of any new waterworks. Another 81 wastewater works permits were also issued, renewed or amended during the reporting period.

Drinking water health and toxicity parameters include a range of naturally occurring substances (e.g. arsenic, barium, boron, lead, nitrate, selenium, uranium, etc.) and other substances such as trihalomethanes, which may be produced during chlorine based disinfection processes. These substances represent a small potential for adverse health effects over longer time periods. While the safety gains associated with eliminating microbial threats far outweighs any possible adverse health

risks associated with disinfection by-products it is important to monitor to ensure they remain within safe levels. A complete list of the health and toxicity substances monitored at Ministry of Environment regulated waterworks is available at http://www.SaskH2O.ca/foroperators.asp (see Municipal Drinking Water Quality Monitoring Guidelines or go directly to http://www.SaskH2O.ca/DWBinder/EPB202MunicipalDrinkingWaterQualityGuidelinesEdition3.pdf).

These water quality standards are achieved through permitting, inspection and follow-up on monitoring results. For existing waterworks, a regulatory phase-in period requires that all works meet heath and toxicity standards by December 2008 (population of 5,000 or more) or by December 2010 (population of less than 5,000). Table 5 depicts compliance with sample submission requirements and testing compliance for health and toxicity parameters during the 2009-10 fiscal year.

Table 5: Health and toxicity sample submission and parameter result compliance – 2009-10 and 2008-09*

Fiscal Year	Health and Toxicity Sample Submission Compliance Rate (Percentage)	Parameter Standards Compliance Rate (Percentage)
2009-10	86	88
2008-09	67	83

*Health and Toxicity parameters include: Aluminum, Arsenic, Barium, Boron, Cadmium, Chromium, Copper, Iron, Lead, Manganese, Selenium, Uranium and Zinc

Source: Ministry of Environment – Environmental Management System

Table 5 provides a representation of both sample submission compliance as well as compliance with health and toxicity water quality parameters based on routine samples submitted by Ministry of Environment permitted waterworks. Based on the available information from the 2009-10 fiscal year, 86 per cent of Saskatchewan Ministry of Environment's permitted waterworks submitted the required Heath and Toxicity samples. Eighty-eight per cent of these waterworks met the drinking water quality objectives for health and toxicity related chemicals. Table 5 shows these results compared to the results for last year. The increase in sample submissions is the result of increased monitoring by the majority of existing waterworks, to determine compliance with the health and toxicity standards that take effect in December, 2010. The increase in samples is related to communities trying to verify high results and to aid communities in deciding on the need to proceed with upgrades to meet the 2010 standards. Ministry of Environment staff continue to work with waterworks owners to achieve compliance by December, 2010. The province follows up quarterly with waterworks owners who haven't submitted the required samples. In the long run, this helps to ensure compliance.

In 2009-10, there were 63 of 659 human consumptive facilities that exceeded at least one health and toxicity related chemical standard resulting in a total of 98 exceedences. Where exceedences for health and toxicity parameters such as lead, arsenic and uranium were encountered that would represent a short-term health risk, waterworks owners were advised of the results and Precautionary Drinking Water Advisories where issued for the affected water supplies. There were an additional 113 hygienic waterworks during 2009-10, however hygienic waterworks are not required to monitor for compliance with health and toxicity related chemical standards. Table 6 provides a list of the parameters and number of excursions at all Ministry of Environment regulated waterworks.

Table 6: Health and toxicity parameter specific excursion totals for Ministry of Environment regulated waterworks – 2009-10.

Parameter	Number of Excursions in 2009-10
Arsenic	36
Barium	0
Copper	2
Nitrate	0
Lead	44
Selenium	6
Uranium	45

Source: Ministry of Environment – Environmental Management System

During 2009-10, nine of 659 human consumptive facilities exceeded the maximum acceptable concentration for fluoride on 16 sampling occasions. Two of these facilities (Frontier and Spring Valley Hutterite Colony) have high, naturally occurring fluoride in their ground water supplies which accounted for two of the 16 exceedences. Turtleford no longer fluoridates its water supply as of August 2009 and accounted for seven of the 16 exceedences. The Ministry of Environment monitors results from all human consumptive systems that artificially fluoridate or have high naturally occurring fluoride.

Implementation of the new trihalomethane standard is underway with a target compliance date of December 2010. It is being phased-in at existing waterworks serving less than 5,000 persons. The standard for trihalomethane is 100 parts per billion based on an average of four seasonal samples.

A total of 170 surface water treatment and delivery facilities were required to participate in the trihalomethane monitoring program during the 2009-10 fiscal year, which should result in 696 samples being submitted each year. The actual number of regulated waterworks that submitted samples was 153 (90.00 per cent). A total of 634 samples (91.09 per cent overall submission compliance) were submitted by the facilities. During 2009-10, 128 regulated waterworks (75.29 per cent) submitted 489 samples for analysis that met the maximum acceptable concentration for trihalomethanes in drinking water. During 2009-10, 116 of 170 regulated waterworks (68.24 per cent) produced water that met the trihalomethane objective of 100 ug/L based on the annual average of seasonal sampling.

- SaskWater continues to work with engineering firms and suppliers to develop and apply emerging technologies to provide quality drinking water to its customers. For the past three years, SaskWater partnered with Consulting Engineers of Saskatchewan (CES) on a Technical Exchange Workshop.
  Consultants, operators and regulators, including the Ministry of Environment, met and shared knowledge for the benefit of Saskatchewan's entire water and wastewater industry.

- In 2009, SaskWater was involved in two major innovative projects to improve water and wastewater services.

  SaskWater partnered with Communities of Tomorrow, Prairie Adaptation Research Collaborative (PARC), City of Moose Jaw, Saskatchewan Ministry of Agriculture and Saskatchewan Ministry of Environment on an Effluent Irrigation Woodlot project. This project is examining the effluent rates that can be absorbed through poplar trees, as an alternative treated wastewater disposal method.

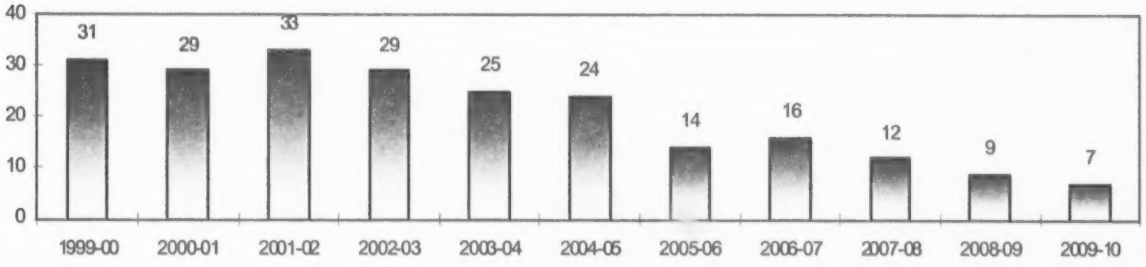
  SaskWater explored the use of chlorine dioxide as an alternative method to meet Ministry of Environment's regulations related to trihalomethanes and other disinfection bi-products. This product is an emerging technology in Canada for the disinfection of water and/or oxidation of organic matters and minerals present in water. If successful, SaskWater would be able to offer an

alternate method of disinfection for communities where traditional methods of using chlorine have resulted in high levels of trihalomethanes.

Measurement Results

Number of waterworks that do not meet Ministry of Environment's minimum treatment requirements

Figure 4: Number of waterworks regulated by Ministry of Environment that do not meet minimum treatment requirements*



*Minimum treatment requirements include: an approved form of filtration and disinfection for waterworks reliant upon surface water or shallow groundwater sources; and disinfection alone for waterworks reliant on deep, well protected groundwater sources.

Source: Ministry of Environment Advisory Tracking Spreadsheet

As of March 31, 2010 there were seven waterworks that did not meet Ministry of Environment's minimum treatment requirements, a net decrease of two waterworks, or 22 per cent since the previous year when there were nine such works (Figure 4). The decrease is the result of ongoing improvements to existing waterworks to correct deficiencies of the water treatment systems. Educational efforts are ongoing as is provision of funding through various funding programs such as the Canada-Saskatchewan Building Canada Fund and Gas Tax fund to upgrade works. Ministry of Environment's educational and compliance efforts will continue during 2010-11 and beyond as a means to reduce the number of waterworks not meeting minimum treatment requirements. The owner of the waterworks primarily controls the achievement of this measure however the regulator has significant influence through a number of mechanisms. Periodically, as newly regulated waterworks are permitted, inadequacies in water treatment capability are discovered.

The number of waterworks that do not meet minimum treatment requirements is a direct indication of potential water quality concerns because of infrastructure inadequacies. As of March 31, 2010, human consumptive waterworks that did not meet minimum treatment requirements served approximately 540 residents or 0.06 per cent of the provincial population (2006 census provincial population of 968,157). Two of the waterworks which do not treat to minimum requirements are seasonal systems and therefore year-round population figures are not included in the above noted totals. Five of the waterworks which do not meet minimum treatment requirements are systems which became regulated with the passage of The Water Regulations, 2002. The remaining two systems that do not meet minimum requirement were regulated prior to the regulatory changes of 2002.

The Ministry of Environment continues to place all regulated waterworks not meeting minimum treatment on Precautionary Drinking Water Advisories to protect consumers. The Ministry also provides technical advice to communities not meeting minimum treatment requirements to aid waterworks owners to work towards system improvements.

Waterworks systems and operations are financially sustainable

Ensuring the financial sustainability of waterworks is critical in the production of safe drinking water over the long-term. Waterworks deteriorate over time and may need to be expanded or replaced. Municipalities will therefore need to know the condition of their waterworks and put in place pricing and capital investment policies for these systems. Public transparency will aid in ensuring that waterworks systems are sustainable into the future. The following is a summary of activities conducted during 2009-10 and the related achievements in working to ensure waterworks systems and operations are financially sustainable.

Results

- By April 26, 2010, 46 per cent of municipalities submitted public information on the financial sustainability of their waterworks for 2007 to the Ministry of Municipal Affairs. Of these municipalities, 51 per cent indicated they had a waterworks rate policy and capital investment strategy in place. This was the third year the applicable regulations including *The Municipalities Regulations*, *The Northern Municipalities Public Reporting on Municipal Waterworks Regulations* and *The Cities Regulations* were in effect. The percentage of municipalities submitting public information on the financial sustainability of their waterworks has increased by six percent since 2008-09 when 40 per cent of municipalities submitted information.

- SaskWater continued to use its Cost of Service Methodology to analyze current customer rates and set potential new customer rates. SaskWater is working on aligning its rates to ensure they are based on the full cost to provide water and are fair, equitable and transparent to SaskWater's customers.

Measurement Results

Percentage of municipalities that have reported waterworks information on the financial sustainability of their systems and percentage of municipal waterworks that have reported that have rates that cover waterworks expenditures and debt payments

Of the municipalities that submitted their public waterworks information to the Ministry of Municipal Affairs, 46 per cent reported waterworks revenues that covered the waterworks expenditures and debt payments. The percentage of municipalities submitting public information on the financial sustainability of their waterworks has increased by six percent since 2008-09 when 40 per cent of municipalities submitted information.

Waterworks rates that cover waterworks expenditures and debt payments are a direct indicator of waterworks financial sustainability. The public reporting regulations facilitate consumers' understanding of the need for, and possibly acceptance of, waterworks rates that cover costs.

Municipalities must submit their long-term financial sustainability plan for their waterworks as part of their application for most infrastructure programs provided through Municipal Affairs.

Lack of municipal capacity will limit some smaller municipalities from establishing these waterworks policies and strategies.

The drinking water regulatory system is clear and effective

Regulations are clear and ensure that health and drinking water quality will be protected

Providing safe drinking water requires clear regulations that are communicated to and understood by the waterworks owners and operators. Additionally, accepted standards and practices are required to ensure requirements are achieved in the proper manner. Program delivery and related policies are necessary to track and ensure regulatory requirements are being met. Collectively, these measures will help ensure drinking water is safe and that wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment. The following is a summary of activities conducted during 2009-10 and the related achievements in working to ensure that regulations are clear and ensure that health and drinking water quality will be protected.

Results

- The Ministry of Environment continued to work towards implementation of chemical health, trace metal, and trace pesticide related water quality standards which take effect for small waterworks in December 2010. As of March 31, 2010 approximately 104 waterworks had yet to achieve standards. Of the 104 affected communities in the province, 45 have upgrades underway and/or have received infrastructure upgrade funding to aid with improvements. Eight communities may be suitable for hygienic classification and six may be resolved through operational optimization. Material has been provided to waterworks owners to provide clear direction on what needs to be upgraded and the reasons why. Ministry staff also continued work on implementing hygienic waterworks classification for some small communities in significant decline.

- The Ministry of Environment participated as a member of the Federal-Provincial Committee on Drinking Water during 2009-10. During that time, review of national guidelines on turbidity, protozoa, viruses, bacteria (total coliform and *Escherichlia coli*) was continued, given the ongoing significance of these parameters to human health. Guidelines or guidance documents were approved for 2-Methyl-4-Chlorophenoxy Acetic Acid (MCPA) and carbon tetrachloride. Review of the national drinking water guidelines was initiated or ongoing for nitrate/nitrite, dichlormethane, fluoride, tetrachlorethylene, and recreational water quality. These national guidelines form the basis for drinking water quality standards in Saskatchewan and other jurisdictions across Canada.

- The Ministry of Environment revised its standards for waterworks system assessments for those systems still required to perform assessments to aid owners in understanding what will be required for round two of the assessments due by December 31, 2010. The revised standards are posted on the internet (http://www.SaskH2O.ca/DWBinder/EPB233WaterworksSystemAssessmentStandards.pdf).

- The *Planning and Development Act*, 2007 requires municipal land use policies on source water protection be included in new Official Community Plans (OCP). Also, statements of provincial interest being developed by the government may include source water protection measures and will apply to subdivision decisions. Future provincial regulations regarding private or communal water wells may be implemented through local bylaws and incorporated into the statements of provincial interest.

- Guidance material developed and made available for those seeking to subdivide land for development through an inter-Ministry working group (Ministries of Municipal Affairs, Environment and Health and the Saskatchewan Watershed Authority) was completed in 2009-10. This guidance is intended to increase water safety and improve wastewater management while streamlining the sub-division process. The Ministry of Environment continued to advocate the use of communal

waterworks in municipal and subdivision settings through provision of comments on subdivision applications referred to the Ministry in 2009-10.

- During the summer of 2009, the Saskatchewan Watershed Authority, Ministry of Health and the Regina Qu'Appelle Health Region cooperated to assess drinking water and explore risk management options in the District of Katepwa. The objective of the study was to assess the drinking water quality of private and public water sources within the district in to order to inform the public and decision makers of the potential risks associated with their water supplies. In all, 179 privately owned water sources and nine publicly regulated water sources were sampled.

- A consultant's report on Saskatchewan's Interim Guidance Document for Assessing Subdivisions (where onsite waste water treatment and disposal systems are proposed) was completed and submitted in the fall of 2009. The consultant, contracted by the Saskatchewan Watershed Authority and Ministry of Health, made recommendations for changes to the document. Ministries of Health, Environment, Municipal Affairs and the Saskatchewan Watershed Authority will consult with key stakeholders before finalizing the document over the next year.

- During the fiscal year, Health Region public health inspectors inspected 1,028 public water supplies that fall under *The Health Hazard Regulations*.

- During 2009-10, ongoing implementation of the Ministry of Environment's Drinking Water and Wastewater Enforcement Protocol resulted in 44 written warnings, nine Ministerial Orders and one charge laid under *The Water Regulations, 2002*. In addition, there was one conviction for waterworks related offences.

- Components of the Drinking Water Information Binder and SaskH2O website are updated regularly by the Ministry of Environment to keep owners and operators current with operational requirements and newly emerging information. During 2009-10, 22 publications were updated or created.

- The Ministry of Environment continued to conduct waterworks inspections in accordance with the Ministry inspection protocol and targets. A total of 886 waterworks inspections were conducted during the reporting period. During waterworks inspections, the Environmental Project Officers (EPOs) stress the need for activities or upgrading to meet drinking water quality standards and requirements. During 2009-10, added emphasis was placed on meeting pending December 2010 chemical health standards for waterworks serving less than 5,000 consumers, updates on requirements for round two of Waterworks System Assessments and compliance with monitoring, record-keeping and upset reporting requirements.

- The results of all waterworks inspections can be found online at http://www.SaskH2O.ca/MyDrinkingWater.asp and the results of wastewater system inspections can be found online at: http://www.saskh2o.ca/wastewaterinfo.asp . Having inspection results online is intended to increase transparency and public trust in drinking water supplies and the associated regulatory processes.

- Waterworks inspections are carried out by the EPOs and are the most important point of contact and compliance mechanism to ensure proper management of drinking water. During a three-year cycle, at least one inspection will be unannounced. Water sources such as wells or surface water intakes are re-inspected every second year. Table 7 summarizes the findings of key elements for inspections conducted during 2009-10.

Table 7: Waterworks inspection finding summary (2009-10)

Inspection Element	Non-Compliant	N/A or No Response*	Compliant
Disinfection continuous at plant	16	20	850
Disinfection Free chlorine > or = 0.1 mg/L leaving the plant	111	65	710
Monitoring daily chlorine	60	7	819
Reservoirs in good repair	17	105	764
Water treatment plant in clean and orderly condition	18	42	826
A total chlorine residual not <0.5 mg/l or a free chlorine residual not <0.1 mg/l in the distribution system	112	19	755
Bacteriological testing after completion, alteration, extension or repair	19	90	777
Reporting of chlorine upsets	52	101	733
Record keeping	38	69	779

N/A = Non-applicable. Some waterworks inspected do not have a treatment plant such as pipeline systems. These may be recorded as N/A or No response.

Source: Ministry of Environment – Environmental Management System

- The Bacteriological Follow-up Protocol for Waterworks Regulated by the Saskatchewan Ministry of Environment EPB 205 was reviewed in the 2009-10 fiscal year as it is important to remain current with any scientific developments related to microbial water quality. There were no changes to the protocol during 2009-10 and the document remains current with response needs within the province to deal with bacteriological water quality problems.

  The Bacteriological Follow-up Protocol for Waterworks Regulated by the Saskatchewan Ministry of Environment EPB 205 provides for the issuance of PDWAs by the Ministry when there is a concern that problems (due to microbial or chemical contamination) may exist. Ministry staff also uses a protocol for upset reporting and follow-up to protect consumer health and drinking water quality. Waterworks owners and operators continue to be advised of upset reporting requirements during inspections. Emergency Boil Water Orders (EBWO) are issued by Health Region officials to deal with confirmed public health threats such as microbial contamination of drinking water. Tables 8 and 9 outline statistics for PDWAs and EBWOs issued for Ministry of Environment and Health Region regulated waterworks during the 2009-10 fiscal year.

Table 8: EBWO/PDWA Statistics for 2009-10 – Ministry of Environment Regulated Waterworks

Time	EBWO	PDWA
In effect prior to reporting period	2	67
Added during the reporting period	3	312
In effect at end of reporting period	0	68

Source: Ministry of Environment

Table 9: EBWO/PDWA Statistics for 2009-10 – Health Region Regulated Waterworks*

Time	EBWO	PDWA
In effect prior to reporting period	43	*94
Added during the reporting period	17	97
In effect at end of reporting period	42	140

* Changes to reporting/recording process has resulted in a variance to the number that was reported in the 08/09 report.
Source: Information provided by the Health Regions in Saskatchewan

Tables 10 and 11 provide information regarding the reasons for PDWAs and EBWOs issued during the 2009-10 fiscal year for waterworks regulated by the Ministry of Environment and Regional Health Authorities, respectively. Further information on the nature of a PDWA and EBWO issued during 2009-10 by the Ministry of Environment is available from the Ministry or on the Internet (http://www.SaskH2O.ca/advisories.asp).

Table 10: Reason for issuing PDWAs and EBWOs during 2009-10 – Ministry of Environment regulated waterworks

Reason for issuance of PDWA	Number
Seasonal startup of waterworks	28
Startup of new or upgraded waterworks	11
Inadequate chlorine residual	11
Maintenance of systems causing contamination	2
Unplanned depressurization of system	115
Planned depressurization	26
Planned maintenance	57
No operator or no certified operator	1
Power outage resulting in system depressurization	23
Lack of minimum treatment	1
High turbidity	18
Combined turbidity and chlorine residual problems	2
Poor bacteriological water quality sample results	5
No disinfection and unknown bacteriological water quality	1
Operational problems or upsets at waterworks	2
Equipment failure	1
Elevated naturally occurring uranium in water supply	1
Elevated naturally occurring arsenic in water supply	1
Elevated sulfate in water supply	1
Break in water supply line	1
Flooding of reservoir or water treatment plant	2
High flow levels due to fire	1
Low raw water supply flow.	1
Total PDWA	**312**
Reasons for issuance of EBWO during 2009-10	**Number**
E. Coli or total coliforms detected in water supply	3
Total EBWO	**3**

Source: Ministry of Environment PDWA and EBWO Tracking Records

During 2009-10, a total of 191 unexpected upsets at waterworks regulated by the Ministry of Environment were reported and addressed such as system depressurizations due to power loss or water main breaks, low chlorine residuals, excessive turbidity/operational problems, positive bacteriological monitoring results, chemical contamination or other failures and resulted in issuance of a Precautionary Drinking Water Advisories (PDWA). Unexpected upsets or events accounted for 61.2

per cent of all PDWA's issued. A total of 121 (38.8 per cent) of all PDWA's during 2009-10 were issued due to anticipated events such as startup of seasonal or new waterworks or planned maintenance activities.

Table 11: Reason for issuing EBWOs and PDWAs during 2009-10 – Health Region regulated waterworks

Reasons for issuance of EBWO during 2009-10	**Number**
Positive *E. coli* results	17
Total EBWO	**17**
Reason for issuance of PDWA	**Number**
Supply unsafe water-miscellaneous	15
Startup of waterworks	7
Positive bacti results	60
Lack of minimum treatment	15
Total PDWA	**97**

Source: Information provided by the Health Regions in Saskatchewan

Ministry of Environment's Drinking Water and Wastewater Enforcement Protocol EPB 222 continues to provide direction and guidance for Environmental Project Officers to ensure uniform, effective and efficient compliance and enforcement practices are followed in dealing with non-compliance for drinking water and wastewater related violations. Protecting public health, safety of people and the environment is the overall purpose. The enforcement protocol requires that compliance be obtained through the use of public education and prevention as initial priorities while enforcement is a tool of last resort. Compliance related actions might also be applied when an issue is causing, or has the potential to cause, a significant risk to public health and safety, or the environment. During 2009-10, the Ministry continued to provide compliance related training for new and existing staff members. The Drinking Water and Wastewater Enforcement Protocol EPB 222 was reviewed so it remains current.

During 2009-10, implementation of the enforcement and compliance protocol continued and was integral in gaining compliance in problematic or difficult situations. Forty-four written warnings were issued for waterworks and sewage works related infractions. As well, nine protection orders have been issued to non-compliant parties. One charge was laid for waterworks related infractions. There was one conviction registered for waterworks related offences. The nature of water and wastewater related infractions encountered during the reporting period are summarized in Table 12.

Compliance Mechanisms

Compliance mechanisms consist of verbal warnings, written warnings, protection orders prosecution actions. Verbal warnings are issued for minor offences encountered during inspection duties. Verbal warnings are documented on inspection forms used by inspection staff to ensure proper follow-up. Written warnings consist of letters of non-compliance and notices of violation. Written warnings are issued for non-compliance detected during inspections or when follow-up requirements identified through previous inspections or correspondence was not complied with. Waterworks and Sewage Works Protection Orders are issued to a person responsible for a system to protect human health or the environment. Table 12 provides a breakdown of infraction details during 2009-10.

Table 12: Enforcement and Compliance Activities-Drinking Water/Wastewater 2009-10

Infraction	Written Warnings Issued	Ministerial Orders issued	Charges Laid	Convictions	Alternative Measures
Fail to report upset condition at waterworks	4				
Fail to comply with permit conditions	3				
No forced air ventilation in pump house/manhole	2				
Fail to report upset condition at sewage works	2				
Improper record keeping	1				
Fail to do required testing/sampling	9	1	1	1	
Chlorine residuals below minimums	2	7			
No annual notice supplied to consumers	1				
Improper sewage disposal		1			
Fail to cause continuous chlorination	1				
Construction on waterworks/sewage works without permit	12				
No certified operator	3				
No monthly review of records	2				
Fail to have backflow prevention	1				
Fail to meet required turbidity standards	1				
Total	44	9	1	1	0

Source: Saskatchewan Environment – Resource Intelligence Program database

- The Ministry of Environment issued 267 new or renewed waterworks operational permits during 2009-10 as a means to ensure waterworks technology and requirements keep pace with new developments and in order to help protect consumer health and drinking water quality. A total of 23 pre-existing waterworks permits were amended. Another 81 wastewater works operational permits were also issued, renewed or amended during the 2009-10 fiscal year. A total of 287 permits to construct or upgrade waterworks (169) and sewage works (118) were issued or amended over the 2009-10 reporting period. Compared with last year this is a nine per cent increase in the number of permits issued. The Ministry experienced an increase in the number of electronic plans submitted for consideration and approval in the 2009-10 fiscal with approximately 40 per cent of plans or applications being submitted by electronic means. Permit application materials are available online at http://www.SaskH2O.ca/foroperators.asp under the heading "Forms".

- The total estimated value of the construction work for all water and wastewater projects is estimated at $260 million ($110M for water and $150M for sewer) based on data from about 70 per cent of projects reporting cost estimates. Compared with last year this is a 35 per cent increase in the total estimated value of constructed works. Notable large projects permitted this year (>$5M) include Yorkton Water Treatment Plant, Prince Albert Water Treatment Plant Upgrades, Lac La Ronge Regional Water Corporation Water System, Regina McCarthy Blvd Sewage Forcemain, Weyburn Main Sewage Pumping Station, Saskatoon New Sewage Pumping Station and Forcemain River Crossing, Regina Global Transportation Hub Sewage System, and Saskatoon Jasper Ave Sewage Pumping Station and Forcemain.

- For the period of this report (April 1, 2009 to March 31, 2010), a total of 34,766 drinking water samples were processed. A breakdown indicated that 71 per cent of the samples for water

supplies were from Saskatchewan Ministry of Environment regulated waterworks, 16 per cent were from private customers and 13 per cent of the water samples were from Saskatchewan Ministry of Health/Health Regions.

Measurement Results
Number of accredited drinking water testing laboratories

Table 13: Number of accredited drinking water testing laboratories

March 2002	March 2003	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009	March 2010	Annual Change
1	2	4	6*	6*	6*	6*	6*	6*	0

* All labs performing or which have performed analysis for waterworks regulated by the Ministry of Environment

Source: Standards Council of Canada web (http://www.scc.ca/en/news_events/notices/lab.shtml)

Laboratory accreditation shows that the facility has a recognized quality assurance and quality control system that assures representative analytical results. Laboratory accreditation was selected as a measure to help gauge results in ensuring safe drinking water for Saskatchewan residents. As of March 31, 2010 all six laboratories located in Saskatchewan that perform analysis of drinking water samples retained accreditation by the Standards Council of Canada or the Canadian Association for Environmental Analytical Laboratories in accordance with regulatory requirements (Table 13). Accredited laboratories include: Ministry of Health – Saskatchewan Disease Control Laboratory, Saskatchewan Research Council, ALS Laboratory Group, the City of Regina Wastewater Laboratory, BDS Laboratories, the City of Regina Wastewater Laboratory, the City of Saskatoon Laboratory and the Buffalo Pound Filtration Plant Laboratory.

Professional regulatory staff has access to the tools necessary to ensure compliance

Providing safe drinking water requires accessible training and tools for staff. The tools take the form of working agreements, computerized information systems, rugged notebooks for data collection in the field, as well as examples, guidelines and educational information needed to deliver programming. Staff qualifications must also be assured and kept current with new or evolving water management and information gathering processes. Collectively, these tools help staff to ensure that drinking water is safe and that wastewater effluent discharges do not threaten the quality of source waters or adversely impact the environment. The following is a summary of activities conducted during 2009-10 and the related achievements in working to ensure that professional regulatory staff have access to the tools necessary to ensure compliance.

Results

- Ministry of Environment program delivery staff and managers held meetings with Health Region representatives in 2009-10 to discuss drinking water and wastewater related programming, progress and waterworks specific concerns in their particular service regions.
- Ministry of Environment's digitized (Remote Inspection) forms were enhanced to support waterworks, wastewater works and landfill compliance activities.
- Ministry of Environment's Environmental Management System (EMS) was enhanced in 2009-10 to include the Limit Compliance checks based on Saskatchewan's drinking water standards and/or individual limits set within EMS. An alert, by way of email, will be sent to the EPO of incoming data excursions. These enhancements will be launched early in 2010-11.

- Drinking Water Quality Index was added to the www.SaskH2O.ca website in order to provide further information to the public.

- Wastewater management, compliance activities and data are now available on the www.SaskH2O.ca website.

- Ministry of Environment was involved in the enhancement of EMS Server upgrades and an Oracle platform upgrade to version "10g". This upgrade provided more features and greater flexibility of system users and helps increase productivity of the Ministry staff using the system as well as members of the public that view information on the www.SaskH2O.ca website.

Measurement Results
Number and average duration of visits to the www.SaskH2O.ca website

Table 14: Number and average duration of visits to the www.SaskH2O.ca website

Time Period	June 21, 2003 to March 31, 2004*	April 1, 2004 to March 31, 2005	April 1, 2005 to March 31, 2006	April 1, 2006 to March 31, 2007	April 1, 2007 to March 31, 2008	April 1, 2008 to March 31, 2009	April 1, 2009 to March 31, 2010
Number of Visits to SashH2O Website	27,015	49,862	58,837	68,834	91,418	109,399	130,228
Duration of Website Visit (Minutes:Seconds)	7 : 28	7 : 55	7 : 24	10 : 53	25 : 43	10 : 00	09:06

*SaskH2O.ca website launched on June 21, 2003.

Source: Webtrends information system

The number and average duration of visits to the SaskH2O website is a good measure of the use of tools that help ensure the protection of drinking water. During 2009-10 there was a significant increase in the number of visits to the website and a measurable decrease in the duration of visits. The reason for the increase in the number of visits to the website cannot be determined from the "Web Trends" data set which is collected.

High quality source waters are protected now and into the future

Risks to source water quality are known

Protecting source water quality is a vital part of providing safe drinking water. Identifying risks to source water quality is the first step in developing actions and strategies to protecting it, thereby minimizing the cost of treating drinking water. Through the watershed planning actions, it is expected that other risks to source water quality will be identified. The following is a summary of activities conducted during 2009-10 and the related achievements in working to ensure that risks to surface water quality are known.

Results

- Saskatchewan's second State of the Watershed Report was released on March 29th, 2010. Saskatchewan's State of the Watershed Report is a benchmark tool for assessing watershed health to ensure source water protection and sufficient water supplies in Saskatchewan. The report uses indicators to assess the current health of Saskatchewan's watersheds, provide information about human activities that impact the environment within watersheds, and evaluate the effectiveness of the management activities.

- In 2009-10, the Saskatchewan Watershed Authority initiated a Watershed Evaluation of Beneficial Management Practices (WEBs) study to evaluate on a watershed level the impacts of beneficial management practices on water quality parameters such as nutrients, pathogens, and sediments. The WEBs project, funded by Agriculture and Agri-food Canada, is one of a number of similar projects across Canada intended to measure the impacts of agricultural beneficial management practices (BMPs). The federal Government approved the establishment of a Watershed Evaluation Best Management Practices Site in Saskatchewan in February 2010. Funding was allocated and data collection for the first year of the study was initiated.

- The Ministry of Environment has further revised the monitoring requirements for regulated wastewater systems that will be needed for implementation of the Canada Wide Strategy for Municipal Waste Water Effluent (see: http://www.ccme.ca/assets/pdf/cda_wide_strategy_mwwe_final_e.pdf). Saskatchewan led the development and is a signatory of this national strategy developed through the Canadian Council of Ministers of the Environment. Changes include a table of revised sewage effluent monitoring parameters which are incorporated into renewed sewage works operational permits, particularly for those sewage works which discharge effluent to fish-bearing waters. Ministry of Environment staff review the results of wastewater effluent discharge testing on an annual basis and address any complaints that arise due to wastewater effluent releases.

- A total of 534 inspections at wastewater works were completed by Ministry of Environment staff during the 2009-10 reporting period. Information gained from the comprehensive inspection results is useful in protecting source water, aquatic habitat and will also continue to be used to move towards compliance with the pending Canada-Wide Strategy for Municipal Waste Water Effluents and thereby advance wastewater management in the province. A total of 81 additional wastewater works operational permits were issued, renewed or amended in 2009-10.

- Under *The Pest Control Products (Saskatchewan) Act*, there were 1807 pesticide applicator licenses issued, 624 service (businesses) licenses and 412 pesticide vendor licenses. Each vendor maintains an approved storage facility supported by the industry and Ministry of Environment. An applicant for a pesticide applicator license must pass a pesticide applicator course. The applicator training is valid for a five year period; however, the applicator license is renewed on an annual basis.

Measurement Results
Number of sewage effluent discharges that represent a risk to source waters

Table 15: Number of sewage effluent discharges that represent a risk to source waters

March 2004	March 2005	March 2006	March 2007	March 2008	March 2009	March 2010	Annual Change
93	93	85	116	114	114	112	↓2

Source: Ministry of Environment – Environmental Management System

As of March 31, 2010, approximately 112 wastewater systems have been identified as having discharge that may reach a surface water body and represent a risk to source waters under certain conditions (Table 15). Of these 112 systems, approximately 69 may require compliance with pending Canada-wide Standards for Municipal Waste Water Effluent (MWWE). During 2009-10 there were many expansions to sewage collection systems to accommodate growth at municipalities across the province. Upgrades for significant improvements to three large sewage works were either approved or work was commenced and will have a positive effect on effluent quality and receiving stream fish-bearing waters. Examples include sewage works upgrade projects at Moose Jaw and Meadow Lake as well as the creation of a regional wastewater treatment system in the Dundurn area. On an annual basis, Ministry staff review the quality of effluent from each regulated sewage works. Reduction of ammonia and chlorine residual emissions within treated wastewater effluent, sewage works capacity or other treatment capability issues typically involve significant planning, investment and construction. Therefore, it can be expected that reductions in the number of works, which represent a risk to source waters, will be a time consuming process.

The number of sewage effluent discharges that represent a risk to source waters is a direct indication of the potential for source water contamination due to poor wastewater treatment. This measure now incorporates the need for future compliance with MWWE standards. This measure was selected since it is the most direct measure of the number of potential significant contamination point sources. Work to resolve problematic wastewater systems will continue for the foreseeable future.

Watersheds are protected, natural purification and protection processes are maximized and potential for contamination is minimized

Protection of source waters can reduce the cost of water treatment and improve water quality while helping to sustain the resource for other uses. Sound water resource management means the processes responsible for breaking down wastes must be protected, as must the land use practices responsible for protecting water from contamination. Actions in terms of both organizational structure and watershed/water management are improving source water protection in the province. The following is a summary of activities conducted during 2009-10 and the related achievements in working to ensure that watersheds are protected, natural purification and protection processes are maximized and potential for contamination is minimized.

Results

- During 2009-10 the Ministry of Environment participated in the Biosolids Task Group (BTG) formed under the Canadian Council of Ministers of the Environment (CCME) to develop national guidance on the management of the residual solid materials (biosolids) which arise through wastewater treatment processes. Saskatchewan led projects of the BTG include completing an inventory of Emerging Substances of Concern (ESOC) in Canadian biosolids and research into effective treatment for ESOC reduction. Saskatchewan also serves as a leader in establishing a CCME Municipal Wastewater and Biosolids Research/Co-ordination Body. Once completed, the work of the Biosolids Task Group will complement the national strategy for Municipal Waste Water Effluent by developing viable solutions for the treatment, reuse or disposal of biosolids in Canada. The Ministry also leads the CCME MWWE Coordinating Committee as a means to help assure consistent implementation of the national standards across Canada as well as improve source water protection in Saskatchewan.

- The Ministry also developed a framework and guidance to aid in the evaluation of new wastewater treatment technologies which will help to assure sound performance and investment as well as protect source water in the province.

- The Ministry of Environment worked with project proponents to assure the introduction of new wastewater treatment technology to the province. One example is the new EcoLibra sewage treatment system.

- In 2006-07, the Saskatchewan Watershed Authority (SWA) began work to develop a model that would provide an accurate assessment of the ecological health of surface water bodies in southern Saskatchewan, as well as a means for diagnosing impairment to ecological health. By 2008-09, over 200 monitoring sites were established across southern Saskatchewan, covering existing Ministry of Environment primary sites, Prairie Provinces Water Board sites, long-term Ministry of Agriculture water quality sites, and SWA sites. Of the sites that were least impacted by human activity, 104 were chosen to represent the healthiest "reference" sites, and the macroinvertebrate assemblages at these sites were established as the reference against which other sites could be compared. Since different species of macroinvertebrates respond differently to particular types of disturbance, such as pollutants, the absence of expected macroinvertebrates can be used to diagnose potential stressors to the aquatic ecosystem and potential mitigation strategies can be developed. In 2009-10, macroinvertebrate samples were collected at an additional 100 baseline sites across southern Saskatchewan. Data from all 300 baseline sites were assessed to determine the health of the aquatic ecosystem at those sites and how the macroinvertebrate community composition changes from relatively healthy to unhealthy sites. The ecological health assessment of the initial 200 monitoring sites was presented in the 2010 State of the Watershed Report.

- The Watershed Authority has focused its drinking water protection efforts on high-risk communities serviced by private ground water wells, some of which are identified by the Ministry of Health and various health districts. The objective of this program is to provide assistance to private well owners in identifying the nature, cause and implications of their specific water quality concerns and the most appropriate means to correct them. Watershed Authority staff conduct water quality investigations and subsequently develop Community Source Water Risk Assessments that provide communities with information concerning their drinking water supplies and what can be done to improve safety of the water. In many cases, community infrastructure upgrades are recommended. The Watershed Authority operates the program in partnership with a high risk community, the associated health district, and the Ministry of Health.

- In 2009-10, the Authority completed a private well sampling survey with over 250 clients from the Village of Katepwa Lake who use private wells for potable purposes. The results were shared with the individual clients and the Health Region. A risk assessment for the community was completed in February 2010. A Community Source Water Risk Assessment for the Village of Katepwa Lake, outlining recommendations to reduce the risks to drinking water supplied by private wells, was released in May 2010.

- Ministry of Agriculture provides funding through the Agriculture Development Fund to support research and development, including agricultural technologies for improved management and/or reduced environmental risks of pesticides, fertilizers and livestock manure. There are 17 ongoing water related projects with a total funding allocation of $1,261,444. Of those, eight projects ($30,060) are funded under Growing Forward in partnership with Agriculture and Agri-Food Canada. Projects are in irrigation agronomy and technology, water conservation and quality, watersheds, and wetlands.

- Ministry of Agriculture administers *The Irrigation Act, 1996*. The legislation ensures soils and water are suitable for sustainable irrigation. Irrigation soils, water quality and water tables are monitored for sustainability. Technical assistance is provided when requested to Ministry of Environment on effluent disposal via land application to help ensure a high level of environmental protection and ongoing agricultural productivity.

- Ministry of Agriculture requires intensive livestock operations to develop waste storage and management plans that will not contaminate water resources and in 2009-10, there were 11 plan approvals issued for intensive operations. Some approvals were for expansions and/or

modifications to existing operations. Monitoring continues for surface quality in watercourses adjacent to intensive livestock operations. The 2003 Surface Water Quality Monitoring Report is available online at (http://www.agriculture.gov.sk.ca/Default.aspx?DN=ab517097-0749-4293-b98e-dbe1935deefa).

Measurement Results

Water Quality Index ratings for rivers

Table 16: Water quality index ratings for rivers (three year average water quality index values and ratings for rivers)

Location	2003 -05	2003-05 Rating	2004 -06	2004-06 Rating	2005 -07*	2005-07 Rating*	2006 -08	2006-08 Rating
Assiniboine River (Highway #8)	67.6	Fair	68.9	Fair	79.3	Fair	75.6	Fair
Battle River (Battle Rapids)	NR	NR	NR	NR	78.9	Fair	84.3	Good
Beaver River (Beauval)	91.7	Good	91.0	Good	80.5	Good	83.3	Good
Beaver River – (Dorintosh)	83.4	Good	82.5	Good	75.1	Fair	76.3	Fair
Churchill River (Otter Rapids)	100.0	Excellent	100.0	Excellent	88.2	Good	90.8	Good
North Saskatchewan River (Upstream Highway #16 Bridge)***	NR	NR	NR	NR	71.9	Fair	92.7	Good
North Saskatchewan River (Borden Bridge)	NR	NR	NR	NR	80.8	Good	82.2	Good
North Saskatchewan River (Prince Albert)	61.5	Fair	73.3	Fair	73.8	Fair	71.5	Fair
North Saskatchewan River (Cecil Ferry North Bank)	66.9	Fair	58.9	Marginal	84.4	Good	80.6	Good
North Saskatchewan River (Cecil Ferry – South Bank)	80.9**	Good	68.1**	Fair	73.1	Fair	80.2	Good
Qu'Appelle River (below Qu'Appelle Dam)	100.0	Excellent	100.0	Excellent	95.5	Excellent	100.0	Excellent
Qu'Appelle River (at Highway # 2)	NR	NR	NR	NR	79.1	Fair	80.3	Good
Qu'Appelle River (above Wascana Creek)	76.1	Fair	70.1	Fair	58.4	Marginal	65.5	Fair
Qu'Appelle River (Highway #11 at Lumsden at rock dyke)	69.0	Fair	67.4	Fair	62.8	Fair	61.4	Fair
Qu'Appelle River (Highway #56)	NR	NR	NR	NR	70.2	Fair	70.3	Fair
South Saskatchewan River (Leader)	NR	NR	NR	NR	81.5	Good	71.5	Fair
South Saskatchewan River (near Outlook)	NR	NR	NR	NR	94.5	Good	94.8	Good
South Saskatchewan River (near Queen Elizabeth power station)	NR	NR	NR	NR	95.5	Excellent	95.5	Excellent
South Saskatchewan River (west Clarkboro)	NR	NR	NR	NR	90.9	Good	91.0	Good
South Saskatchewan River (near Muskowday)	NR	NR	NR	NR	64.8	Fair	72.8	Fair
Saskatchewan River (Highway #6)	NR	NR	NR	NR	90.4	Good	86.3	Good
Souris River (Highway #39)	NR	NR	NR	NR	70.1	Fair	63.5	Fair
Tobin Lake (at E.B. Campbell Dam)	NR	NR	NR	NR	80.9	Good	81.9	Good

*Index values and ratings were re-calculated in May 2010 for 2006-2008 based on the Canadian Environmental Sustainability Indicator (CESI) methodology. The CESI methodology differs from methodologies used to calculate the index in previous years and therefore the results are not directly comparable to previous values. The Ministry of Environment intends to employ the CESI water quality index methodology in future years.
** No data for 2005
*** Data for 2008 only

Source: Ministry of Environment water quality monitoring results

The Water Quality Index (WQI) is a measure of the quality of ground water and surface water for specific uses, such as the protection of aquatic life, livestock watering, recreation, etc. that may not otherwise be apparent through individual water quality test results. The levels of chemicals and organisms in the samples are compared with the WQI levels for safety and health of the people. The WQI is a composite measure of different chemicals and organisms in the water and whether the water quality is safe for particular uses. The WQI incorporates three elements:

- scope - the number of variables that do not meet the water quality objectives;
- frequency - the number of times that variables do not meet the objectives; and
- amplitude - the amount by which the objectives are not being met.

The WQI ratings provide a measure of the quality of water in Saskatchewan's rivers and allow a comparison of results over time. However, a limited number of samples are taken in any year and this, as well as changes in water levels and river flow from year to year, can produce significant annual changes in the index. To provide a more meaningful picture of longer term change that is still sensitive to underlying changes, the WQI for rivers has been presented as a three-year mean. WQI values were provided for 2006-2008. Some stations showed a modest improvement in water quality based on the index calculations.

From these elements, the WQI produces a score between zero and 100. The government has limited direct control over the results of this broad measure of water quality. While the government regulates point source pollution, many human and natural factors can influence water quality.

The following descriptive categories are used to further explain the WQI results:

- Excellent: (value 95-100) - water quality is protected with a virtual absence of threat or impairment; conditions very close to desirable levels. These index values can only be obtained if all measurements are within objectives virtually all of the time.
- Good: (value 80-94) - water quality is protected with only a minor degree of threat or impairment; conditions rarely depart from desirable levels.
- Fair: (value 60-79) - water quality is usually protected but occasionally threatened or impaired; conditions sometimes depart from desirable levels.
- Marginal: (value 45-59) - water quality is frequently threatened or impaired; conditions often depart from desirable levels.
- Poor: (value 0-44) - water quality is almost always threatened or impaired; conditions usually depart from desirable levels.

Number and percentage of municipalities with bylaws in place to protect their drinking water supplies

Table 17: Number and percentage of municipalities with bylaws in place to protect their drinking water supplies

Baseline December 2005		December 2006		December 2007		December 2008		December 2009	
Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
178	22	178	22	181	23	182	23	188	24

Source: Ministry of Municipal Affairs

The number of municipalities with bylaws in place to protect their drinking water supplies is a direct indication of the level of municipal protection of water sources.

In 2009, six new municipal planning bylaws with drinking water protection provisions were prepared. The per cent of the urban and rural municipalities that have some form of water management policy contained in their community planning bylaws has increased to 24 per cent (14 per cent with mandatory provisions and 10 per cent with permissive or discretionary provisions). There should be more municipalities establishing bylaws with water source protection provisions in the near future, as a result of implementing the *Planning and Development Act, 2007*, establishing statements of provincial interest in land use that include municipal water source protection, the increased need for planning for growth in Saskatchewan and the work of the Municipal Capacity Development Program.

Citizens and consumers trust and value their drinking water and the operations which produce it

Consumers value quality water and are willing to pay for it

The following is a summary of activities which were conducted during 2009-10 and the related achievements in working to ensure that consumers value quality water and recognize the need to pay for it.

Results

- The Ministry of Environment participated in the SWWA annual convention in November 2009 as a means to further understanding of the importance of operator certification. Ministry staff provided the key address at the convention as a means to convey direction and developments in the water and wastewater regulatory framework. The Ministry also continues to support education efforts at the SARWP annual meeting and trade show in December 2009. The Ministry also assisted with the planning and delivery of a northern water workshop in April 2009 for the sixth year in succession.

- During 2009-10 the Ministry of Environment addressed the public education need for water cost and value directly through distribution of brochures and at water related workshops and presentations on drinking water and wastewater management and through the SaskH2O website. These documents are distributed directly during waterworks inspections or provided electronically (at http://www.SaskH2O.ca/DWBinder.asp). The SaskH2O website also continues to remain up-to-date and is offered as an important educational and information source for the public.

- On a bi-annual basis, SaskWater polls customers on key customer satisfaction measures including water quality, price and access to information. The next survey SaskWater will carry out will occur in 2010.

Measurement of Results
Per cent of survey respondents indicating that they are willing to pay more for their drinking water

Table 18: Per cent of survey respondents indicating that they are willing to pay more for their drinking water

Dec. 2001	May 2003	March 2005	March 2006	May 2007	February 2008	May 2009	March 2010	Change
61	61.9	68	70.8	67.8	68.8	66.5	65.5	↓1.0

Source: Ministry of Environment Polling Results – March 2010

Based on a March 2010 poll conducted by the Ministry of Environment, 65.5 per cent of people polled are willing to pay more to improve their drinking water (strongly agree or agree) (Table 18). This value is 1.0 per cent less than the previous poll in May 2009 and is 4.5 per cent greater than the December 2001 poll results. The polling results continue to show ongoing public recognition of the value of water or willingness to pay for it at levels relatively consistent with polling results since March 2005. These polling results may be related to the high level of confidence in safety of drinking water, may be influenced by ready access to information on drinking water quality, greater profile of water related issues in the media or a high profile of precautionary drinking water advisories and emergency boil water orders showing government is working to improve drinking water management.

Table 19: Summary of regional polling results on survey respondents indicating that they are very or somewhat confident in the quality of their tap water

% Strongly Agreeing	2009				2010			
	North	Regina	Saskatoon	South	North	Regina	Saskatoon	South
I am willing to pay more to improve the safety or the quality of my drinking water.	24.6%	25.9%	19.2%	31.2%	14.0%	21.4%	17.6%	14.6%

In terms of regional differences (Table 19), comparatively strong agreement has fallen notably in the rural areas (both northern and southern Saskatchewan) in terms of willingness to pay more for improved water quality and safety. Specifically, 14.0% of Northern Saskatchewan residents strongly agree with this statement, (compared to 24.6% in 2009) while 14.6% of those living in Southern Saskatchewan strongly agree (compared to more than double (31.2%) who felt this way in May 2009).

Citizens and consumers trust the quality and reliability of their drinking water systems and are confident in the regulatory system

Consumer trust in drinking water and in the regulatory systems that govern water-related activities is vital to ensuring the long-term sustainability of waterworks. Consumers who trust the quality and reliability of their water supplies are more willing to support the production of safe drinking water in the future. Release of polling results also bolsters transparency and public trust. The following is a summary of activities conducted during 2009-10 and the related achievements in working to improve

citizen and consumer trust in the quality and reliability of their drinking water systems and confidence in the regulatory system.

Results

- The Ministry of Environment conducted polling to determine public opinion associated on drinking water safety near the end of the 2009-10 fiscal year. The most recent March 2010 omnibus polling results show the measurement of results. Public opinion polling remains as an important mechanism in determining the level of success in attaining government's safe drinking water goals.

- The Ministry of Environment continued to advance educational efforts, water treatment workshops and consumer notification initiatives during the 2009-10 fiscal year as a means to increase consumer and water system owner/operator knowledge of drinking water related issues. Information was provided through workshops delivered to northern waterworks owners and operators in April 2009, directly to the City of Saskatoon and through presentations at the annual Saskatchewan Water and Wastewater Association meetings in June and November 2009. Information continued to be provided through fact sheets on water conservation, by means of discussion with waterworks owners and through the SaskH2O website (http://www.SaskH2O.ca) as a means to help increase consumer confidence in their water supplies.

Measurement Results
Per cent of survey respondents indicating that they are very or somewhat confident in the quality of their tap water

Table 20: Per cent of survey respondents indicating that they are very or somewhat confident in the quality of their tap water

Dec 2001	May 2003	March 2005	March 2006	May 2007	Feb. 2008	May 2009	March 2010	Change
72	87	86	87.3	82.6	86.6	89.9	88.7	↓1.2

Source: Ministry of Environment Polling Results – March 2010

Based on a March 2010 poll conducted by the Ministry of Environment, 88.7 per cent of people polled strongly agreed or agreed they are confident in the safety of their own drinking water (Table 20). These polling results show a high level of confidence and represent a decrease of 1.2 per cent from May 2009. The results are 16.7 per cent greater than December 2001 when 72 per cent of people surveyed were very or somewhat confident in the quality of their tap water. Actions such as consumer education efforts, waterworks inspections, implementation of water quality standards, water workshops and consumer notification help build confidence in the safety of drinking water at a relatively high level which has held in the mid to high 80 per cent range since 2003. Ongoing attention to these elements of drinking water protection will help to maintain the high level of public confidence in safety of drinking water in the future. The measure is important since it provides an indication of how efforts to ensure safe drinking water are progressing.

Table 21: Summary of regional polling results on survey respondents indicating that they are very or somewhat confident in the quality of their tap water

% Strongly Agreeing	2009				2010			
	North	Regina	Saskatoon	South	North	Regina	Saskatoon	South
Saskatchewan residents have safe drinking water.	30.2%	47.4%	50.3%	33.2%	28.3%	25.6%	33.4%	27.3%
I am confident that my drinking water is safe.	56.7%	57.9%	67.8%	52.3%	50.1%	43.0%	59.3%	48.3%

In terms of regional differences (Table 21) Regina and Saskatoon residents are less likely to strongly agree that Saskatchewan residents have safe drinking water, compared to 2009 (from 47.4% to 25.6% and 50.3% to 33.4%, respectively). Further, Regina residents are less likely to strongly agree that they are confident in the safety of their drinking water, compared to 2009 (57.9% vs. 43.0% in 2010). Polling results did not provide any direct indication as to why confidence levels changed from 2009 to 2010.

Citizens have meaningful access to information about their water quality

Information on water quality is important in building public trust in water systems. Information must be understandable, current and readily accessible. To build full trust, information needs to be available both from the waterworks owner and the regulator. The following is a summary of activities conducted during 2009-10 and the related achievements in working to ensure citizens have meaningful access to information about the quality of their drinking water.

Results

- SaskWater publishes an annual Comprehensive Water Quality Report highlighting water quality parameters of all its service areas and is available at http://www.saskwater.com/MediaCentre/Publications.asp?sub=subPublications&type=Pub2010.

- The results of waterworks inspections can be found online at http://www.SaskH2O.ca/MyDrinkingWater.asp and the results of wastewater system inspections can be found online at: http://www.saskh2o.ca/wastewaterinfo.asp. Having inspection results online is intended to increase transparency and public trust in drinking water supplies and the associated regulatory processes.

Measurement Results

Number of system owners that publicly release water quality results

Table 22: Number of system owners that publicly release water quality results

March 2002	March 2003	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009	March 2010	Annual Change
3	118	359	508	494	511	637	653	681	↑28

Source: Ministry of Environment – Environmental Management System

As of March 31, 2010, 681of 772 MOE regulated waterworks owners publicly released water quality results to the consumers that they serve (Table 22). This value represents a significant increase of 28 since the 2008-09 fiscal year and represents 88.2 per cent of waterworks regulated by the Ministry of Environment in 2009-10. Notification of consumers is required on an annual basis for waterworks governed by the Ministry of Environment. The Ministry will continue to pursue further progress on attainment of public reporting requirements during 2010-11 and beyond. The number of system owners that publicly release water quality results is a good way to determine if consumers have direct meaningful access to information about the quality of their water. Additional waterworks specific information on drinking water quality is also available from http://www.SaskH2O.ca/MyDrinkingWater.asp.

Reduced consumption of water

Reduced consumption of water is important in minimizing costs and thereby properly valuing water. Water conservation is also necessary to protect water source quality and abundance, particularly in time of increased demand. The following is a summary of activities which were conducted during 2009-10 and the related achievements in working to reduce consumption of water.

Results

- The Saskatchewan Watershed Authority led implementation of water conservation practices. As part of the Go Green Strategy, the province announced the Provincial Toilet Replacement Rebate Program in January of 2009. The program provides funding of $11.2 million over four years to replace existing residential toilets with low or dual flush toilets. In 2009-10, the program received applications from 12,951 households and rebates were provided for 16,333 low flow toilets. In addition, through the Authority's water conservation partnerships with 30 municipalities, residents eligible for rebate under the provincial program could apply for a further rebate from their municipality. Since the rebate program began in January of 2009, more than 500 million litres of water have been saved and more than 950 tonnes of CO_2 emissions avoided This program is an important vehicle to increase water use efficiency and educate the public on the need to conserve water. Community partnerships have resulted in programs targeting municipal leaks and outdoor water use. Public education in the form of bill stuffers, workshops, advertising campaigns and water conservation booklets have been achieved in partnership with organizations such as the Saskatchewan Environmental Society, SaskWater and SaskEnergy.

- Implementation of water conserving practices is actively being pursued by the Saskatchewan Watershed Authority through public education and collaboration with municipalities, the non-profit sector and other provincial agencies. Partnerships with the communities of Humboldt, Yorkton, Assiniboia and Weyburn, the Saskatchewan Environmental Society, SaskEnergy and SaskWater have resulted in increased awareness and uptake of water conservation practices.

- In 2009, SasKWater delivered it's **"Save a drop. Save a lot."** water conservation campaign that was supported by a $50,000 grant from the Saskatchewan Watershed Authority. The goals of the campaign were to promote water conservation among SaskWater's municipal customers, give municipal customers the information they need to reduce leakage on their distribution systems, and educate customers about the value of water and the importance of water conservation.

- SaskWater began its water conservation campaign with a leak detection workshop that was offered in February 2009 at the Saskatchewan Urban Municipalities Association's (SUMA) Annual Convention. Due to the success from the workshop, SaskWater added water leak detection as a new service available to Saskatchewan communities in 2009-10 and beyond.

- The spring 2010 Corporate Knights review, a Canadian Magazine for Responsible Business, rated Saskatchewan with the best performance in Canada attaining an A- in indicators relating to water consumption, water treatment and drinking water quality achievements.

Measurement Results
Average per capita consumption [gallons per capita per day]

Table 23: Average per capita consumption [litres per capita per day]

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Annual Change
346	368	348	367	331[1]	323[2]	338[3]	333[4]	328[5]	N/A	↓ 6.0

N/A: Complete dataset is not available
[1] For 2004 the LCD (litres/Capita/Day) was 331 (72.75 gallons per day) and the weighted LCD was 432 (95.03 gallons).
[2] For 2005 the LCD was 323 (71.14 gallons per day) and the weighted LCD was 423 (93.05 gallons).
[3] For 2006 the LCD was 338 (74.41 gallons per day) and the weighted LCD was 449 (98.77 gallons).
[4] For 2007 the LCD was 333 (73.25 gallons per day) and the weighted LCD was 440 (96.79 gallons).
[5] 2008 the LCD was 328 (72.14 gallons per day) and the weighted LCD was 422 (92.83 gallons).

Note: Commencing with the 2009 year, water consumption values are reported in metric units. Water use for previous years have also been converted to metric units using a more precise conversion factor that accounts for slight differences reported for 2008-09 and previously.

Source: Saskatchewan Community Water Use records for 2008, published June, 2009

Measuring the municipal per capita water consumption provides for total annual urban water use (in-home, business and municipal irrigation) within communities (Table 23). The annual consumption is affected by summer irrigation demands, which vary between wet and dry years causing the performance measure to vary between years. However, because the goal of water conservation is to become more efficient in all water usage, this is a good measure of water conservation in the urban setting. The Saskatchewan Watershed Authority does not have direct control over this measure but, through water conservation programs, does influence the measure.

This measure is computed by summing the Litres per Capita per Day (LCD) for each community and dividing by the number of communities. The weighted LCD is computed by summing the yearly water consumption for each community and dividing by the total population and 365 days. The Saskatchewan Community Water Use Records maintained by the Saskatchewan Watershed Authority is the dataset used in this determination. The change in the water consumption rate is attributed to the natural annual variability found in water consumption records and climatic influences on water use. As the water conservation plan has only recently been implemented, it is not anticipated that a measurable decrease in water use will be observed for several more years.

A complete dataset for 2009 is not available at the time this report was prepared. The database source of the performance results for this measure has a time lag of about six months; January 1 to December 31 2009 data and will be available in July 2010.

Reduction of water consumption is partly the result of promotional efforts by the Saskatchewan Watershed Authority as well as greater general emphasis through application of the drinking water awareness efforts on the true value of drinking water quality. Over the 2005 to 2009 period, brochures that focus on water use in and around the home were distributed by the Ministry of Environment to help reduce water consumption by domestic water users.

2009-10 Financial Overview

Actual expenditures relating to drinking water management in 2009-10 were $96.663 million, which was $10.657 million lower than the budgeted expenditures of $107,320 million. This net variance is primarily attributable to under expenditure of the Municipal Rural Infrastructure Fund (MRIF), Building Canada Fund – Community Component and Building Canada Fund – Major Infrastructure Component. Within the Ministry of Environment, the net over expenditure results from an increase in year-end contingent liabilities payable offset by savings related to prolonged staffing activities encountered by Municipal Branch in comparison with a full staff compliment of 37.8 FTEs.

The Saskatchewan Ministry of Health FTE utilization for the Saskatchewan Disease Control Laboratory was at the full level of 17.5 FTE's during the reporting period. In addition to the FTEs within the Saskatchewan Ministry of Health, funding is provided to Regional Health Authorities for water related programs and surveillance. It is not possible to state the actual number of Regional Health Authority FTEs that are dedicated to water as a number of different disciplines (i.e. Medical Health Officers, Public Health Inspectors and Public Health Nurses) can become involved in water and or water related disease surveillance and issue-specific time is not tracked.

Under the Canada-Saskatchewan Municipal Rural Infrastructure Fund (MRIF), the Canada-Saskatchewan Building Canada Fund-Communities Component (BCF-CC), the Canada-Saskatchewan Building Canada Fund-Major Infrastructure Fund (BCF-MIC), the Canada-Saskatchewan Provincial/Territorial Base Fund (PT Base), the Canada-Saskatchewan Infrastructure Stimulus Fund (ISF), and the Saskatchewan Infrastructure Growth Initiative (SIGI), the Ministry of Municipal Affairs provides financial support to municipalities for priority drinking water and wastewater infrastructure improvements. In 2009-10, $3.488 million in federal-provincial funding was paid out under the MRIF, $58.215 million in federal-provincial funding was paid out under BCF-CC, $5.000 million in provincial funding was paid out under BCF-MIC, $10.394 million in federal-provincial funding was paid out under PT Base, $3.982 million in federal-provincial funding was paid out under ISF, and $0.607 million in provincial funding was paid out under SIGI for water and wastewater projects.

Expenditures

The following table outlines information on the actual and budgeted expenditures based on original 2009-10 and revised estimates relating to water management. Funding for water management activities comes from various government ministries and agencies and is contained in their respective budgets. Explanations have been provided for all variances greater than $5,000.

Ministry or Agency	Estimates Budget ($000s)	Actual Expenditure ($000s)	Variance Over (Under) ($000s)
Ministry of Environment – Total	3,645	6,207	2,562 [1]
Saskatchewan Watershed Authority - Total	7,533*	7,533	0
Ministry of Municipal Affairs **			
- MRIF	11,344	3,488	(7,856)
- BCF-CC	62,167	58,215	(3,952)
- BCF-MIC	10,400	5,000	(5,400)
- PT Base	7,158	10,394	3,236
- ISF	2,833	3,982	1,149
- SIGI	855	607	(248)
Ministry of Municipal Affairs - Total	94,757	81,686	(13,071)[2]
Ministry of Health			
Regional Health Services			
- Regional Health Authorities (Health Regions) Base Operating Funding	476****[3]	476	0
- Regional Targeted Programs and Services	30	0	(30) [4]
- Regional Programs Support	0[3]	0	0
Saskatchewan Disease Control Laboratory – Environmental Services	879	761	(118) [5]
Ministry of Health - Total	1,385	1,237	(148)
Total	107,320	96,663	(10,657)

* Expenditures shown are grants from the General Revenue Fund to the Saskatchewan Watershed Authority for these programs.

** The Ministry of Municipal Affairs received supplementary estimates of $77.731, which is included in the budget estimates.

***The Ministry of Municipal Affairs budget is determined by program, not by infrastructure category (e.g. water and wastewater). The budget estimate is based on a ratio of the water and wastewater expenses compared to total program expenses multiplied by the total program budget for 2009-10.

**** This amount does not include additional funding provided to Health Regions to offset increases to salaries and benefits through collective bargaining agreements.

Explanations of Major Variances

[1] Over expenditure is the net result of a change in year-end contingent liabilities payable and vacancy savings related to prolonged staffing activities encountered by Ministry of Environment, Municipal Branch during the fiscal year.

[2] In 2008-09, municipalities acted on the stimulus messaging and completed more work than anticipated under MRIF. This caused the Ministry of Municipal Affairs to overspend their 2008-09 budget and resulted in significant savings under MRIF in 2009-10. Also, the extension of the MRIF program by two years to March 31, 2012 allowed municipalities additional time to complete their projects and resulted in slower than anticipated spending in 2009-10. The BCF-MIC, PT Base and ISF 2009-10 budgets were finalized before projects were announced for funding. There are significant savings under BCF-MIC because only one of the three BCF-MIC projects announced has been officially approved by the federal government in 2009-10. For many projects, the full amount budgeted was not spent because federal approvals took longer than anticipated and engineering firms were unable to finalize designs as quickly as municipalities expected.
[3] $20,000 was transferred from Regional Programs Support to Regional Health Authorities' base operating funding (Mamawetan Churchill River Regional Health Authority) to address costs associated with inspection of remote health regulated water supplies in the far north.
[4] $30,000 under-expenditure in Regional Targeted Program due to deferred projects.
[5] $118,000 under-expenditure for the Saskatchewan Disease Control Laboratory is mainly due to efficiencies in lab testing equipment.

Revenues

There are no revenues that arise specifically in relation to delivery of drinking water activities for the Ministries of Environment, Municipal Affairs and Agriculture. Any revenues that arise from government commitments and activities relating to drinking water and source water protection within the Ministry of Health, SaskWater or the Saskatchewan Watershed Authority are reported within their respective annual reports.

For More Information

For an electronic copy of this report or more information on the status of drinking water in Saskatchewan visit:
www.SaskH20.ca/news.asp or
http://www.SaskH2O.ca/WaterInformationFactSheet_Drinking_AnnualReports.asp

Or contact:

Municipal Branch
Environmental Protection and Audit Division
Saskatchewan Ministry of Environment
3211 Albert Street
REGINA, SK S4S 5W6
Telephone: (306) 787-6504
Toll free: 1-800-567-4224

Feedback on the key actions and results may also be provided to the Ministry of Environment through the contact information immediately above.

Next year's annual report will address status of drinking water for the 2010-11 fiscal year.

Appendix A: List of Acronyms Contained in this Document

ABC	Association of Boards of Certification
ADD	Provincial Council of Agriculture Development and Diversification (ADD) Boards
ATAP	Advanced Technologies Applications
BCF-CC	Canada-Saskatchewan Building Canada Fund - Communities Component
BCF-MC	Canada-Saskatchewan Building Canada Fund – Major Infrastructure Component
BMP	Beneficial Management Practices
CAC	Certification Advisory Committee
CCME	Canadian Council of Ministers of the Environment
CES	Consulting Engineers of Saskatchewan
CESI	Canadian Environmental Sustainability Indicator
CEU	Continuing Education Units
COM	Certified Operations and Maintenance
CSIP	Canada-Saskatchewan Infrastructure Program
DWQI	Drinking Water Quality Index
EBWO	Emergency Boil Water Order
EFP	Environmental Farm Plans
EMS	Environmental Management System
EPO	Environmental Project Officer
FSIN	Federation of Saskatchewan Indian Nations
FTE	Full Time Equivalent
GUDI	Groundwater Under Direct Influence
INAC	Indian and Northern Affairs Canada
ISF	Infrastructure Stimulus Fund
LCD	Litres per Capita per Day
MCPA	2-Methyl-4-Chlorophenoxy Acetic Acid
MRIF	Canada-Saskatchewan Municipal Rural Infrastructure Fund
MWWE	Canada-wide Strategy for Municipal Waste Water Effluent
NTU	Nephelometric Turbidity Units
OCB	Operator Certification Board
OCP	Official Community Plans
PCAB	Provincial Council of Agriculture Development and Diversification (ADD) Boards
PCAP	Prairie Conservation Action Plan
PDWA	Precautionary Drinking Water Advisory
PPWB	Prairie Provinces Water Board
PT Base	Provincial Territorial Base Fund
RHA	Regional Health Authority
RWQP	Rural Water Quality Program
SARM	Saskatchewan Association of Rural Municipalities
SARWP	Saskatchewan Association of Rural Water Pipelines
SCADA	Supervisory Control and Data Acquisition
SCWMC	Spirit Creek Watershed Monitoring Committee
SIAST	Saskatchewan Institute of Applied Science and Technology
SIGI	Saskatchewan Infrastructure Growth Initiative
SUMA	Saskatchewan Urban Municipalities Association
SWWA	Saskatchewan Water and Wastewater Association
WEBs	Watershed Evaluation of Beneficial Management Practices sites
WQI	Water Quality Index